

Southern Peru

(19)

May 31, 1966
Machu Picchu

Arrive hotel late afternoon. Find that my room is ca. 7800 ft according to my altimeter now.

Then go for a walk around ruins.

Thalass

5:15 pm. 7925 ft. Hear what sounds like Thalass song in sparse AS down hill.

Further along path, see two Orange-billed Saltators alone. This is all for today.

June 1, 1966
Machu Picchu

Going up path toward top of mountain.

Start out from hotel 5:15 a.m. Still dark. Quite a lot of fog around. But fog starts to lift almost immediately.

5:35 a.m. Hear first bird songs. Andean Sparrows just as it is starting to get light. Ca. 8100 ft. Soon followed by other bird sounds - unidentified. But Dawn Chorus is not very loud or varied. Presumably most species are not at the height of the breeding season.

Lots of Wren songs. House Wren?

First Diglossini type Twitter heard, in distance, 8200 ft, ca. 5:48 a.m.

Some more bird sound by 6:00 a.m. Including a lot of

(20)

miscellaneous hummingbirds. Not species I recognize.

6:01. Above 8300 ft. Hear what sounds like Whitestart song. NODWA. Shuts up.

6:10 8400 ft. Reach first, small but real, "AS-type forest." Hummingbird is singing. Thalass and/or "first" species heard above Panos.

6:11. Then hear more Whitestart-like songs downhill. NODWA. (Actually, I can't be sure that these phrases are not uttered by some form of D. lafresnayeri. They are Pect-like. But short.)

NOTE: This patch of "AS" looks quite "rich". And there still are a lot of bird sounds.

6:20. Hear presumed Cy song uphill. NODWA. For a way. But obviously high and then. Presumably more or less "Southern". Shuts up. Then I hear more presumed Whitestart song downhill. NODWA. Shuts up.

Palates of fog coming in, occasionally (again) 6:23 a.m. Some distance further on, hear what sounds like Scan aerial display in distance.

6:31. 8475 ft. Hear more Cy song uphill. NODWA. Then see bird. Perched 2-3 ft up low thick scrub. Alone. All phrases begin "Tsit tsit" followed by brief Twitter. Ending with 3-4 "seeeeeee" Notes.

Reach area of sunshine 8650 ft 6:53 a.m. Birds are definitely quieter now.

There are lots of Sporophila luctuosa in the mixed bamboo scrub here.

Fog getting very thick again 7:05 am. Then lifts again (presumably temporarily).

8:425 ft. Hear what sound like Scans in distance. Then one more burst Whitetail-like song. NODWA but completely overlapped by Scan.

7:15. Catch brief glimpse of what appears to be all-black (or all gray) Diglossa. 3 ft up sparse scrub. Silent. Definitely alone. (Juv. albelinea ????)

7:20. 8800 ft. See pair PL Atlapetes! (This is a "new" subspecies, with which I am not familiar. Comparatively dark gray below. Mountaineer not conspicuous.) Birds ranging 1-6 ft up in very mixed scrub. Silent. Definitely alone.

A few minutes later, in fog, hear what sounds like Horreum song. "Tut-tut" - Twitter. No terminal "seeeeee"s. Could this be Coere ???

Still later, see single Diglossa (Brunn?) 2 ft up in scrub. Silhouetted against skyline. Definitely alone.

7:40. Some distance further on, see pair PL's 2-4 ft up in scrub. Possibly same birds seen earlier. (Still) silent and alone.

Only a few minutes later, 8870 ft, see same pair PL's again 3 ft up scrub. And now there is a single Delothraupis (definite) with them. Only a couple of ft away. Also 3 ft up. All birds silent. All disappear immediately. Can't tell who is leading.

Then see group 4 M. cyanocephala 40 ft away in small trees. Very noisy. Apparently disputing among themselves. Apparently alone. Also disappear fairly soon.

Then see PL - Delothraupis group again. All birds 2-5 ft up scrub. All still close together. Definitely highly integrated.

Delothraupis f → PL three times. Then I see that there is another bird with group. A single EXIX. Then a ♀ or juv. Bari (!) j → group. Then Bari flies away. Nothing follows. Then a pair of M. cyanocephala j → group. Then a single juv. Bari (definite) j → group.

It certainly looks as if the PL's formed the "original nucleus" of this mixed flock!

A minute later, see single Plush-capped Finch. Silent. Apparently alone. 40 ft away from group. 15 ft up in trees in which cyanocephala dispute occurred earlier.

8:11 a.m. 8950 ft. Hear what may be another Cy feeding. Phrases "Tut tut tut-sa-whencee tut-ta-whencee." (The latter "triplets" sometimes repeated. NODWA. But completely overlapped by Scam in distance.

8:22. A little further on, see another mixed flock. A pair of M. cyanocephala and a pair of C's (definite) appear 10-15 ft second growth tree patch forest. Tanagers feeding on berries. C's picking insects off leaves. Then these birds move on. A second later, single Delothraupis appears same tree. And a single Blue & Black appears in bush 10 ft away. All birds silent. Then Delothraupis and Blue & Black go off in same direction as C's and M. cyanocephala. Group probably highly integrated.

Reach 9050 ft 8:40. Beginning of bare area right above patchy mic (AS - DSTF). So I am going to sit here for a while to see

if anything more appears in the "good" vegetation

Birds in general very quiet now, except for a single Scam wh
o is still in full display.

Nothing! Starting back down hill 9:07 a.m.

Brown

9:24. See single juv. Brown. Silent & alone. Undoubtedly same
e ind. seen with flock earlier.

10:05. Sun out pretty steadily now. It is getting hot.

10:42. 8325 ft. A single M. cyanocapilla flies by. Silent and
alone. Area bamboo scrub.

10:53. Further down road see group 3 Thlypopsis low in
bamboo scrub. Apparently same species seen here before. Apparently
alone.

Reach edge ruins 11:00 a.m.

This afternoon, going to site where largest mixed flocks were
seen a couple of years ago (near ruins which are called, I gather,
Huina - huayna).

Reach area above ruins of Machu Picchu itself 2:00 p.m.
Partly cloudy. Warm. No wind. Everything quiet.

2:12 p.m. 8125 ft. Hear lots of flycatcher and Bani type R's,
but can't see who is uttering them.

SEE ALSO TODAY'S NOTES ON MIXED DIGLOSSINI.

3:08 8575 ft. See single sooty Thrush alone in second grow
th scrub. 2 ft up. Silent.

NOTE: This whole path has been cleared since I was here last.

3:22. Finally reach crest of ridge. 8800 ft according to my
altimeter now

Thalass?

Some hummingbirds which may be Thalass are foraging.
Now there is a path going down the far (forested) side of this ridge. I am going to follow it.

3:33. 8675 ft. See pair Blue & Blacks moving thru AS - VSTF trees. Uttering "PN"s. Apparently alone.

NOTE: This slope faces more or less East.

3:48. 8650 ft. See group 3 Blue & Blacks. Ranging 6-20 ft in AS-VSTF. Apparently alone.

4:02. About 30 ft down hill. See definite mixed flock. Includes at least 4 birds of 3 species. 1 is Th. cyanocephala. Can't identify the others. All in mixed VSTF - second growth. Fairly quiet.

4:10. A little further on, 8550 ft. See what is obviously BcBT (but without conspicuous eye spot) 3-6 ft up in scrub under trees. Silent. Apparently alone.

NOTE: This path goes on and on - there is some very nice vegetation indeed. SEE BELOW.

Go on down to 8475 ft 4:17. Real VSTF here. Can hear presumed Thalass, but everything else quiet. Starting back up path.
4:25 pm.

5:01. 8670 ft. See single Cy. Definite. 2 ft up bamboo scrub. Silent and alone.

Thalass
Then see Thalass perched in tree down hill. Foraging. Identification definite.

cy
bamboo scrub. Also silent and alone.

cy
Both Cys disappear almost immediately. Reappear a few

minutes later. One chasing the other. Apparently hostile but silent.

Leaving this area and starting back down west side mountain 5:25 p.m. End of observations for today.

COMMENT: It may be worthwhile describing (or redescribing) the various areas here.

① The "hotel side" of the mountain — more or less W and NW. Very poor vegetation on the whole. Lots of grassy areas. Also lots of bamboo and other thick but poor looking low scrub. But also some patches (along stream valleys) of quite good woods. Apparently by AS-VSTF. Thick but not very tall.

② The "far side". More or less E_n^{+SE} . Lots of good forest. Apparently AS-VSTF and VSTF. Also occasional patches dense scrub, and scrub under trees. The forest here may not be quite as "good" as some of the forests in other parts of the Andes, e.g. Campich, the Western Cordillera of Colombia, the wet side of Paracé, and near the Paramo de Zumbador. But it certainly is at least nearly so.

③ Looking at some of the adjacent mountains, I see that they have similar types of vegetation on their corresponding slopes. I.E. the differences probably are due to edaphic - climatic factors — not the hand of man.

NOTE: I think that the small ruins at the crest of the ridge where I worked this afternoon probably are not Huinã-Huayna itself. Latter probably is large village in ruins some distance farther along. But the path I have been following certainly is the path to this village.

June 2, 1966
Machu Picchu

Going to work the same place as yesterday afternoon.

Arrive crest of ridge 5:40 a.m. Getting light cloudy. Cool. Occasional patches of fog.

A few miscellaneous bird sounds started already.

Then there is silence again. (It certainly cannot be the breeding season for most species here!) Then some thrush notes 5:52.

Scam! First hummingbird starts singing 5:54. Scam? Then some panamensis begin. Wrens. And DC by one of my species?

Quite a lot more bird sounds 6:00 a.m.

SEE ALSO TODAY'S NOTES ON MIXED DIGLOSSINI

6:15. See definite mixed flock. Includes 4 Frebellus (!),

3 presumed BCBT's, 1 Cy. All birds close together, 20 ft up in VSTF tree with small lavender flowers. All birds feeding on flowers. Cy extracting nectar. Tanagers presumably eating buds. Frebellus noisy. Cy sings occasionally. NODWA. Group as a whole stationary. Possibly not highly integrated. (All birds may be attracted only to food source.)

I am going to start down path 6:28 a.m.

Hear more Atlapetes whistle songs. Then some Whitestart-like songs. Partial overlap. Then some Cy song. Probably partly overlapping both the other species. Then Cy and presumed Whitestart shut up. Atlapetes continues NODWA. Shuts up.

Then get very poor view of another mixed flock. Very diff

use. In mixed scrub. Certainly includes 1 Plush-cap. Uttering little trills. Also I can hear 2 Atlapetes. Group probably includes 2 or 3 other birds, of other species, but I can't identify them.

Then I go down road a few yards more. See pair PL Atlapetes. Ranging 2-6 ft up mixed scrub. Very noisy. Whistle songs. Trillers. Rattles. These presumably are the birds that were with flock earlier. But they seem to be alone now.

Then single Towheebell lands in tree 30 ft away. Sits and looks at PL's. This must, I think, be considered a game of Towheebell j —> PL. But then Towheebell flies on. PL's remain behind. (So both PL's and Towheebell must be considered alone now)

6:50. A little further on, see Cy j —> same pair PL's. Cy sings repeatedly. NODWAH. Then Cy f —> PL's at least 3 times.

PL's would seem to be definitely game nuclear here!!!

Then Towheebell (re) joins —> PL-Cy group.

This also seems to be one of the areas where Cy is definitely active nuclear!

6:59 a.m. Some considerable distance further on. Region of thick but rather low scrub on old slide (8450 according to my altimeter now). See another pair of PL Atlapetes. 3 ft up. Noisy but definitely alone.

Am beginning to reach this area 7:01 a.m.

Hear some more Whitestart-lilie song. NODWAH. Shuts up.

Then some Atlapetes Whistle song. NODWAH. Shuts up.

7:14 A little further on, see group 2 or 3 Blue & Blacks in tree

tops. Apparently alone. This is exactly where same species was seen yesterday afternoon.

Birds in general noticeably quieter now.

W 17:28 8325 ft. Hear more Cy song. NODWA. Shuts up. A few minutes later, hear more Whitestart-like song. NODWA. Steps

Go on along path considerably further than I went yesterday afternoon. Reach spot above precipice near dam 17:40. Now going to retrace my steps.

W 17:48. A few hundred yards further on. Region mixed VSTF and scrub. See definite mixed flock. Includes at least 2 Whitestarts (definite), 1 Cy, 2 Blue & Blacks, 1 M. ⁽¹⁾cyanocephala, possibly others. Quiet. Diffuse. Possibly not highly integrated. White starts flycatching 3-25 ft up. Cy feeding pink flowers 10-20 ft up. Both cyanocephala and Blue & Blacks stay high in tree-tops, 20-25 feet up.

W 17:50 ADDITIONS: Group also includes 4 or 5 ⁽¹⁾frigatebirds (2 juvs), in tree-tops; 2 ⁽¹⁾Whitestarts, ranging 6-20 ft up; 1 ⁽¹⁾Basileuterus type, probably coronatus, 6 ft up scrub; at least 1 ⁽¹⁾Atlapetes; at least 1 ⁽¹⁾Atlapetes brunneiuncta (sic!!!!) — Note, both Atlapetes low in scrub, but not close together; at least 1 ⁽¹⁾flycatcher; 1 ⁽¹⁾"Cotinga EXIX"; 1 ⁽¹⁾Wren (species never seen before). I also can hear at least 1 woodcreeper with group. Probably there are other birds around as well. Flycatcher ranging 6-15 ft up. "Cotinga" 6 ft up. Wren very low in scrub.

Group is very diffuse indeed. Quiet most of time. But almost all species utter some loud sounds occasionally. Whitestarts sing NO

DWAH

As far as I can tell, there is no definite leadership in this group of birds just drift away eventually — possibly not all in same direction.

NOTE. This whole was a very large flock. By far the largest flock I have seen here (yet). It may be significant that it occurred just where some "upper sub-tropical species" (i.e. B. coronatus and A. pallidirostris) appeared.

Incidentally, these latter species are unusually high here!

8:49. 8475 ft. See group 4 Blue + Blackies 2-10 ft up small trees. Flamingo but apparently alone.

9:32. Back up near crest of ridge. A single Forsterella flies by alone. Nothing going on up here — so I will start back down path, toward mixed flock areas.

9:58. 8470 ft. Hear more Atlapetes Whistle Song. NODWA

10:20. Down where large flock seen earlier this morning. See single ♂ trogon. Red breast (with white bar). Gray wings. Large white tips to tail feathers. Another subtropical species? ??

Flock as a whole certainly gone now. But the wren that was with flock is still here.

Starting back up path 10:30 a.m.

10:45 a.m. 8550 ft. Second growth — VSTF side old slide. See definite mixed flock. Includes 1 blue bird (probably Cy.), 3 Whitestrupes, 1 presumed BCBT (light eye!), 2 Whitetrants. All birds quiet. Ranging 10-20 ft up. Group as a whole may be well integrated.

Reach crest of hill again 11:08 a.m. Now going back to hotel.

Orange bell + eye being

down the other side of the mountain

This afternoon, going to work along lower border ruins of Medina Picchu itself (the area where I watched ♂ Barua a couple of years ago) Arrive 3:00 pm. Clear Hot. This area is in shadow now. 7800 ft according to my altimeter now.

Everything very quiet. Just a few hummingbird noises.

4:00 pm. Absolutely nothing (except a few small humming birds) has been visible so far. Do Baruas move with the seasons? In any case, I am going to look for other areas myself.

Reach beginning of path to what I called "Huayna Picchu" a couple of years ago (according to sign now it is "Yna Picchu") 7925 ft, 4:15 pm. Going to walk down path a little.

Lots of *Thalassidroma*'s and little or nothing else.

4:55. See a single Sooty Thrush fly by. Then see a single *Syrrhaptes* type (grey body, rufous wings, cap, and tail) alone. In bare baro-somb.

Leaving 5: pm.

5:15. Right beside hotel. See group 3-4 CC's (definite) moving thru low scrub. Many. Lots of "PN"s (i.e. "secrete" notes). But apparently alone.

COMMENTS: Of course, I have had plenty of time to think this afternoon. And I believe that I can now explain all the variations within the "gregarious tanager association" in detail.

Gregariousness certainly is positively correlated with relative extent of "humid temperate - humid subtropical frontier

n". And the birds can be divided into 3 major "groups of regions" from this point of view.

① The North. Colombia and Venezuela. A group of dirt with separated islands. All with more or less extensive humid subtropical frontier. I.E. all including many areas where gregariousness will be favored.

All the islands in the North are fairly "homogeneous" — insofar as there is fairly free communication between all areas within any given region. This explains why birds living in particular environments within the regions which should not favor gregariousness still do, nevertheless, show an appreciable number of gregarious reactions

② The Center. Ecuador. Relatively more arid and paramo frontier and relatively less humid subtropical.

Region probably broken up into a number of partly, or slightly, semi-isolated areas. This explains why there are considerable differences between the gregariousness of birds of different areas. But the differences are by no means enormous.

③ The South. (Most of) Peru and Bolivia. Frontiers probably like those of Ecuador. But all the regions are much more "cut up" — by a host of different mountain chains and river valleys. Thus, divided up into a great number of semi-isolated areas. Areas probably more isolated, on the average, than in Ecuador. This may explain why different populations are even more different in behavior in Peru and Bolivia than in Ecuador.

NOTES: Some of the brush and scrub visited this afternoon

soon was really quite thick and varied. Similar scrub extensively would have been inhabited by many more birds (at least more variable birds) in both the North and Center too! (There would have been more flocks, or at least more casual encounters between species, in the North and Center too!)

As the birds of the 2 sides of the mountain here seem to differ considerably in behavior, it may be worth stressing that the scrub areas and forests of the 2 sides are hardly in contact. Largely separated, at higher elevations, by rocky and other relatively bare areas.

June 3, 1966
Machua Picchu

This morning, I will work in same place as yesterday morning. Arrive crest of ridge 5:32 a.m. Just starting to get light. Quite clear (no fog!). Cool. Slight wind. Everything quiet.
6:16 a.m. See group 4 Tinamous and 1 Cy in same trees with lavender flowers where Tinamou-Cy-BCBT group was seen yesterday. All birds close together. Feeding vigorously. Cy sings from time to time. NODWA.

6:24. A few yards down road. See single Cy (possibly same individual), 12 ft up in tree, singing NODWA. Definitely alone (now).

6:40. Going quite far down path. Almost no birds visible or audible. Clear, cold weather certainly does not seem to encourage the formation of conspicuous flocks!

to area where large flock seen yesterday 7:02. Every-
thing quiet except for a pair of quail who seem to have reached
within a few minutes later. This seems to provide a second wave
of miscellaneous bird sounds.

7:11. Hear what sound like Atlapetes brunneicauda song.
NODWAH.

Going to start back up path 7:17.

It is getting warmer now, but wind is increasing slightly.

Back up to crest 8:00 am. Going to start down again.

8:32 2400 ft. See pair of Atlapetes. Ranging from ground to
2 ft up. Region dense bamboo scrub under VSTF trees. Both birds
silent. Definitely alone.

8:45 8370 ft. Just above where large mixed flock seen yester-
day. See small flock. Includes 1 Cy, 2 Th. cyanocapala, 1 other bird
of another species (yellow-orange and black). In scrub, 2-3 ft up.
Cy definitely in lead. Th. cyanocapala f ———→ Cy. Other bird
f ———→ group. Cy sings repeatedly NODWAH. All phrases "Trit-
tut nodwa tarcece tarcecece tarcecece." Other birds quiet.

9:00 am. Woodcutters arrive !!! So I presume all birds
will go!

Further on, hear more presumed Atlapetes brunneicauda song.
(Still) NODWAH.

9:50 8500 ft. See single Th. cyanocapala. 20 ft up top VSTF tree.
Silent. Definitely alone.

A few minutes later, see definite mixed flock. Includes 2 ^① Whit
sectants, 2 ^② Cys, 3 ^③ Th. cyanocapala, 1 ^④ BCBT (see below), 1 ^⑤ Blue and

6:00 1. 1A

2-3 hear several Whistertail-like songs. Also NODWA. (I think that these are uttered by Whistertail, only.) Shut up

6:04. Hear something around base of tree sounds very much like B. magnirostris

6:16. Hear first Cy song. Uphill. NODWA. Usual form. Distinct - twitter - "mew-mew" or "taw-mew" notes. Bird shuts up

Then I hear a few more brief Whistertail-like songs down hill. Also NODWA

6:30. See C. L. (apparently Thalass) feeding on small, tubular, pinkish-purple flowers. Feeding at the flowers later, I see that they have holes in them. Look like the work of a small Diglossa. But the hummingbird certainly was not using these holes.

6:45. Still hearing occasional bursts Whistertail-like song down hill. All NODWA. All sound typically Whistertail.

6:50. Hear more Cy song uphill. NODWA.

See beginning to reach this area at 6:55 a.m. Stimulating an area are in general bird noise! But only very briefly.

6:58. See a single Diglossa, probably juv. Brown, feeding on pink tubular flowers 1-2 ft up low scrub. Silent and alone. A few seconds later, hear Brown-like R-Twitter and R - (Zaza-twitter) patterns in neighborhood.

NOTE: Both Scan and Thalass seem to ignore the species of pink flower just visited by the Diglossa.

7:02. See juv. Diglossa land in tree, 6 ft up. Does Wing-Q, apparently in H Posture. Then parent lands beside it, feeds it. Then

halls back to the same. The whole thing is so rapidly and in such bad light, that I couldn't catch the species. But I think it was Cy.

A few seconds later, see adult Cy, definitely alone, for long in scrub, 2-3 ft up. On same jungle flowers as Thelass earlier this morning!!! Cy also sings. NODWA

COMMENT: Cy and Brown territories are at least adjacent here. And both seem to be overlapped by both Thelass and Scrub territories. (I think that Scrub and Thelass territories overlap one another — at least partially).

7:13. Hear more Whitestart-like songs down hill. NODWA. Then I see pair of Whitestarts (definitely) 10-12 ft up in second growth trees. Flycatching. Definitely alone.

7:16. Hear whole burst of Brown-like R's and accelerated switters coming from very low in scrub. Catch brief glimpses of birds flitting about. One seems to have TV with belly fluffing (can't see position of bill and head). Then Cy flits into adjacent bush! Then Colibri (probably Scrub) approaches. Then all birds fly away in different directions.

So Cy and Brown territories are at least partly overlapping here. And they certainly are not stratified at this particular spot. Vegetation is too low here to permit stratification!

7:26. Wind getting a little stronger now.

7:33. Some yards up path, see single adult Brown. Perched 2 ft up bamboo scrub. Singing NODWA. All songs pure switters. Shuts up. Then I hear more Cy Song NODWA.

US Cy shorts up. Then I hear Whitestart - like song nearly stops.
Hear song all NOON.

Brown 7:43. See Scan feeding on same species of pink tubular flower far
and by a Bani above Pinaro.
7:47. Then hear more Whitestart like songs nearly all phrases sho-
rt. But not as typically Whitestart as some I have heard. I am rather
puzzled by them.

7:55. See a single Blue & Black Tanager. 3 ft up scrub. Definite-
ly alone. Uttering "ON"s. Flies away.

Starting further uphill 8:00 a.m.

Brown 8:10 a.m. 8650 ft. Hear and see single Brown flycatcher. Definite-
ly alone. 2-3 ft up mixed scrub. All phrases pure Twitter, without
R components.

8:25. 8825 ft. Hear a few Attapetes Whistle Song. Presumably
PL. NODWA.

Brown 8:50 9000 ft. See very diffuse mixed flock. Includes 1 PL att-
apetes, 1 Brown, 1 unidentified (small gray) bird. All 2-3 ft up scrub.
Low rather dry looking scrub. All silent. All rather in different di-
rections.

Brown 9:03. A few yards further up, see single Brown flycatcher. Silent
and definitely alone.

Reach topmost patch of woods, 9100 ft, 9:10 a.m. It is hot now.
Everything quiet now except Scan.

SEE ALSO TODAY'S NOTES ON MIXED DIGLOSSINI

Brown 10:20 a.m. 9200 ft. See single adult Brown. Silent. Feeding low
in scrub under VSTF trees. There also are a Myiarchus and an Certhia.

ca in trees 30-50 ft away. But I don't think that this can be called a flock.

Starting downhill 10:25 a.m. Stopping observations 10:30

This afternoon going to work along road below hotel. Stop at 3:20 p.m. Clear sunny. Hot.

4:07 p.m. Up by hotel, see small flock in low grass near near ruins. Group includes 2 Spyztorus, 2 CC's, 10 Barn Flatties of else. All hanging 2-3 ft up. Spyztorus moving. Other species silent. Spyztorus flycatching. CC's probing in dead flower heads. Barn feeding on same deep purple flowers visited by other members. "Diglossini Social Complex" uphill this morning!!! Group obviously not integrated. Different species scatter in different directions.

4:50 p.m. Below hotel 14875 ft. See another flock Low in scrub & beside road. Includes 2 Th. cyanocephala, 3 Sporophila luctuosa, 1 wren (same species as with flocks on other side mountain), Th. cyanocephala definitely in lead. Sporophila f —————> cyanocephala. But group probably is not highly integrated. The tanagers go off in one direction. The finches stay behind. And the wren disappears.

Stopping 5:05 p.m.

June 5, 1966
Maxwell Peckham

Going to work on far side of mountain.

Above crest of ridge 5:42. Another clear cold day.

First miscellaneous bird sounds 5:45 a.m.

0.20m 8550 ft. Get very poor view mixed flock top AS tr
 us 7 birds at least 2 Myiophobus, 1 Blue + Black, 1 White
 test, 5 or 6 other birds of 2 or 3 other species. Highly integrated.
 Flying down hill. Moderately noisy. Whitestart sings occasionally.
 NOBWA

Everything - lead quiet 6:35 a.m.

6:41 8425 ft. See a single Synallaxis (gray body, rufous cap,
 wing, and tail) in bamboo scrub. Apparently alone.

CORRECTION: There also a pair of OZ's, 10 ft away same scrub.
 Probably forming loose "flock" with Synallaxis. All birds quite silent.

6:54 8370 ft. See single Altopetes puniceinucha. On ground
 of path. Hear noisy 4-5 quail !!! Do I call this mixed flock? I think
 no. (Probably the flock approached the quail.)

Then quail fly off into adjacent scrub. Quite noisy (obviously
 alarmed by me) at first. Then I see that there is a Whitestart⁽³⁾, a wren⁽⁴⁾
 (usual species), a thrush⁽⁵⁾, and probably a couple of other small birds,
 near the quail !!!

Sun reaches this area 7:01 a.m.

Going back up path 8:175 ft. See pair PL's low in mixed
 scrub. Some Synallaxis type (at all) with them. This probably is same
 group seen earlier this morning. I.E. it is well integrated.

7:50 8500 ft. See mixed flock down hill. VSTF edge old slide.
 Includes at least 2 Whitestarts, 1 Whitestripe, 1 bird of another species
 (probably Cotinga ~~EX~~). Probably others.

8:07 8600 ft. See single Ruddy Flycatcher 10 ft up AS edge
 path. Apparently alone. CORRECTION: There is a pair of "BCBT"s (us

ual species), possibly some other birds. ... which are ... the
probably is all one mixed flock

Back out of ridge again 8:18 am

Going back down hill 8:35 8:50 ft ... B. luteoviridis
down hill in bamboo. Apparently alone

I wonder why there are no GT's or B. luteoviridis around here?

9:40 2400 ft See large mixed flock. Group includes 2 PL's, at
least 1 Synallaxis, 2 B. luteoviridis types, at least 1 BCBT, 4 or (more
probably) 5 Fucibellus, 2 or (more probably) 3 Cys, 1 Phenicticus
(no! — not the usual, largely yellow, species — the rarer, largely
black, one). All in VSTF. PL's, luteoviridis, and Synallaxis
stick low in scrub. All others in scrub and trees, 6-20 ft up.
Group as a whole fairly noisy. Obviously highly organized. Fucibellus
both leaders and pursue members (when not leading)

9:50. Turning corner of path, come across same flock again.
Still includes same birds. And now I see that it also includes 2
Myiobuteo, 2 Whitestripes, 1 Whitehead (definite!), 1 Cotinga
EXIX, and 2 small wrens (possibly House Wrens). All these addi-
tions are in trees

Interestingly enough, there are no Th. cyanocephala!
I have seen cyanocephala around here before. So the local birds
of this species probably are with another flock somewhere else now.

Flock as a whole doesn't seem to be going anywhere in par-
ticular way, fast. But all birds are quite close together.

Still no fittis!

10:30 Further up path. See pair Whitestarts downhill in VS

also 1 Blue Black

both

TF edge still from place seen earlier this morning. But now the pair seems to be alone

10:45 am Up to crest of ridge see still another mixed flock! Includes 3 or 4 *Leucospiza*, 1 *Black*, at least 1 "B.C.T." All 10-20 ft up VSTF trees. Quiet. Group probably not highly integrated. Leaving 11:00 am

COMMENT: There is a point that I forgot to mention earlier. I shouldn't be surprised if *Leucospiza* plays the same ecological role here as *Colaptes* in other parts of the Andes. (The two forms may, in fact, be closely related)

Going to investigate *Thryna* Pichu again this afternoon (and now I am told that the name definitely is "*Thryna*") Start up along path 3:15 pm

Reach point 8045 ft 3:45 pm. This is a place where I saw some birds a couple of years ago. But it certainly is quiet and apparently devoid of life now (except for some hummingbirds).

Actually, there are quite a lot of hummingbirds around here — including *Thalassidroma*.

4:30 pm See group 3 *Whitethroats*. Alone. Quiet. Moving thru small trees 10-12 ft up.

5:04 See a single *Wren* of the species often with flocks on the other side of *Thalassidroma* Pichu. Definitely alone here now.

Stopping observation 5:15 pm

Jan 9 1972
Hawaii

Going to work same place again this morning. Arrive crest ridge 5:40 am. Clear cool. Some wind. Everything quiet.

SEE ALSO TODAY'S NOTES ON MIXED DIGLOSSINI

6:25 am, 8675 ft. Come across mixed flock. ¹¹ 1 White-tailed Tanager, 1 PL, 1 adult ¹³ and 1 juv. Blue & Black, and 1 ¹⁴ "BCBT". Also hear Basileuterus - type (5) and wren (5) (probably usual species) very close by. All low in scrub & small trees, 3-5 ft up. Obviously highly integrated, but I can't see who is leading.

Everything dead quiet 6:40

7:00 am 8500 ft. See single "BCBT" 20 ft up in USTF. Is out and apparently alone.

7:10 am Region where found large flock seen here first day (8450 ft according to my altimeter now). Get very poor view large flock. Presumably the "usual" group. Includes at least 1 White-tailed, 1 ¹³ "BCBT", at least 1 ¹⁴ Blue & Black, 2 ¹⁵ White-tanagers, 1 ¹⁶ "BCBT", 2 wrens (probably House Wrens). Also 1 Paddy Flycatcher, 1 ¹⁷ Mangrove, 1 ¹⁸ larger woodcreeper (possibly ~~LXXXXIX~~ and/or ~~CVII~~). Almost certainly 5 or 6 other birds of 2 or 3 other species.

Flock rather noisy. All species moving at "usual" levels of vegetation. Highly integrated. Moving quite rapidly. Can't see who, if anyone, is leading.

A few minutes later, flock seems to start back downhill again. Now see that it includes a second "BCBT", a Basileuterus ¹² cor

1 catanga XIX

ouates, a Loxia bird (probably PL), 2 wrens of another species, and a bird that looks like the "CC-Like" XXIV!!!

There is no fairly stationary and quiet. Obviously still highly integrated.

7:48 Now there is a loud fight between 2 of the "BCBT's"!

Ag is eating green fig-like fruits.

Now I see that there also is a Dilethera with group.

And a ♂ Blue-capped WCC (definite). Picking insects off leaves in tangle 6-10 ft up in usual Coniostemum style. And a single, large, gray-headed rufous Guan is attracted to group! And a small nondescript hummingbird!

7:59. And now I see that there is a single Phenicia with group. Same species seen yesterday. 10 ft up in trees.

NOTE: As far as I can tell, none of the species is showing any particular preference for any other. All are close together.

8:05. Group seems to be disappearing. Presumably drifting uphill.

COMMENT: This is surely the most varied flock I have ever seen!!!

Are gregarious birds "normal" members of mixed flocks, under natural conditions??? This is the only area I have ever worked where gregarious birds have not been "shot out". And I have now seen two species with flocks.

COMMENT: Rather surprisingly, in view of the very high development of Allogagarrism here, there is no "general color scheme" common to a large proportion of the species involved. Both

may like the "blue + yellow" of the Northern Andes or the "blue + chestnut" of Bolivia.

Also: Delothraupis

8:30 am. Up by crest ridge again. Bush & small dark
D. flowers (Browns?) from low scrub. It flies off & sits separately above.
Then see large flock uphill (approximately 2000 ft). Includes
4 Fimbriellus, 2 M. cyanocephala, 2 BCBT's, 1 or 2 Blue & Orange
Tanager (quite definite - same subspecies as at Compadre), and
one trogon (definite - apparently same species seen below). All in
"transition" zone between 2 sides of mountain. Low, rudimentary
thick scrub with occasional trees. "BCBT's" and Trogon tend to
stay in trees. Trogon flycatches. M. cyanocephala probably usually
in trees also. Both Fimbriellus and Blue & Orange usually low,
only 6"-2' above ground. Group obviously highly integrated. Fim
brellus sometimes in lead. M. cyanocephala in lead at other times.
Blue & Orange(s) f —————> Fimbriellus repeatedly. M. cyano
cephala s —————> "BCBT's" "BCBT's" f —————> group
Fimbriellus s —————> trogon. Fimbriellus f —————> M.
cyanocephala.

At one time, Ch s —————> group. But apparently only brief
ly. And I would swear that a single Lania (with mountain) also
joined group briefly!!!!

Starting back down path 9:30 am

Hear more Atlapetes Whist Song. NODWAH

9:48 2625 ft. A single blue & chestnut bird flies across
path. Probably Plush-cap. Silent. Definitely alone.

A little further down, see single Ruddy flycatcher alone

10:11 2000 ft. Saw what looks like ♀ Pipilo c. tanga (spotted below). 1 ♂ VSTF Vireo. Definitely alone.

10:13 Back to where large flock seen earlier. Flock back again. Now includes at least 3-4 individuals, 1 CC-like individual, at least 2 Whitotrapes, 1 "VSTF", 1 ♂ WCC, 1 dark gray formicid type.

♂ WCC feeding on some species lavender-purple flowers as Cys earlier. Also picking insects off leaves.

Flock also includes 1 Mangrove, 1 Cy, and 1 ♀ or juv. WCC. Possibly others.

Cys and WCC's feed on same flowers only a couple of feet apart. Apparently ignore one another.

Abn! Cy supplants ♂ WCC. Apparently silently. WCC leaves without resistance.

Fucellies also seem to be feeding same species of flower. Possibly also Whitotrapes (and others).

Flock gradually drifts uphill. Starting back up path myself 10:35 a.m.

Some distance up road. See single Cy. Definitely alone. Probing in back VSTF tree. Sing. NODWA.

10:30. 8350 ft. See still another mixed flock. Includes 1 ♂ and 1 ♀ Heptac or Summer Tanager (almost certainly the former), 1 nondescript flycatcher, 1 Whitotrap, 1 or 2 PL Atlapetes. In scrub and small trees edge road.

Catch up with what seems to be essentially same flock a few minutes later. Now includes a small Whitotrap, a small gray flycatcher (Spizitorus?), and what looks like 2 Black Drogona.

11:04 am Crest of ridge see large pale Agnoscus type alone
 11:12. See triton that was with flock earlier. Definitely alone now.
 Stopping observations 11:15 am

Going to work same place again this afternoon. Arrive crest of ridge 3:02 pm Clear. Sunny. Windy.

3:08. A single Ag flies by sight and alone

3:10. See "usual" flock of 4 Swallows and 2 P-BT's. Also 1 *Myiarchus* type flycatcher with group. And 1 White-tail. All quiet. In VSTF trees. Obviously (still) highly integrated.

Starting down path 3:16 pm

Some yards down path (8800 ft according to my altimeter now - me!). 3:35. See another single Ag alone

4:00 pm Down where large flock seen this morning. Hear Ag singing. NODWA

Then see single Ruddy Flycatcher, 1 White-tail close together. But this does seem to be all that is around now. I & the flock in this neighborhood seems to have been largest, and smooth, closely integrated soon after its formation early this morning, and to have "declined" pretty steadily since then.

4:14. Walking back up road, see ♂ and ♀ *Pipilo*. Quiet. Alone. 10 ft up VSTF. Obviously same species seen this morning. But a species I have not seen elsewhere. ♂ has typical pattern of the genus. Except that center of breast & belly is clear yellow. Greenish "mottling" on flanks.

4:22. 8675 ft. 2 Ags fly by. Definitely alone. Going uphill thru VSTF.

4:34 pm Up near crest. See pair ^{White}Whitethroats 10 ft up in AS type trees. They see that they are part of a mixed flock. Group also includes at least 2 ^{White}Whitethroats, 1 Blue & Black, 1 "BT", 2 or 3 others. Apparently highly interested. Whitethroats perhaps in lead.
Stopping observation: 5:00 pm

June 17, 1966
Machin Pechu

Going to work same place(s) again this morning. Arrive crest of ridge 5:42 am. Clear Car Guide & strong wind. All birds quiet.

SEE TODAY'S NOTES ON MIXED DIGLOSEINI

Staying along upper part of path the first part of this morning. 7:00 am. Sun finally reaches this area. Including a small outburst of bird noises.

7:25. 8450 ft. See what might be a mixed flock. A single bird, possibly Atlapetes torquatus, flies across road. A few seconds later, a single Th. cyathophylla flies across road at almost the same place. Both disappear from view.

7:32. A few yards down road. See single Blue & Orange. 1-2 ft. up low scrub. Definitely alone.

7:40. See single Cy moving thru very mixed scrub. 4-8 ft up. Sings repeatedly. All NOOWAH. Definitely alone.

7:58. 8540 ft. See single PL. Silent. Apparently alone. In bamboo scrub under VSTF trees.

8:02. Reach approximate area where largest flocks seen yesterday.

ay. See single Cy. Then see that it is part of a mixed flock. See Cy.
 another Cy, a ♂ WCC, another single which could be either Cy or
 ♂ WCC, (a whole cluster of blue-black honeycreepers, in fact, 5
 and 4 Tumbler, one all in tree with lavender pink cap. I fed
 flowers. All feeding on flowers of umbellifers apparent, eating the flow-
 ers themselves. And so are the Cys! WCC (2), probably just taking
 nectar.

There also are a couple Corvinae, P. frontalis and/or H. m.
ispugus types in a nearby tree. But I can't identify them.

So this flock would seem to be a "permanent" feature of this
 area. But its size varies considerably at different times.

8:28. A little further on, fresh group 3 ♂'s in brown
 broo scrub. Very noisy. Lots of "A-C-O" and grating. Apparently
 alone. (NOTE: This is almost exact spot where brunneicollis seen a
 few days ago. I.E. territories of the 2 species probably overlap.)

Go considerably farther along path than I have ever gone before.
 Without seeing anything more. Start back along path 8:48 a.m.

8:58 8345 ft. A single Cy flies by. Definitely alone.

9:10. Back near area of large flock. See single bird which
 looks as if it might be a Tachyphonus. Definitely alone.

The flock itself seems to have left this area.

9:38 8545 ft. See a single Tumbler moving thru VSTF. De-
 finitely alone!

It is now very hot. And wind has died down.

Go on up to west, then start down path again 10:00 a.m.

10:15 8625 ft. See 2 or 3 Blue & Black Tanagers, 15-20 ft.

up in VSTF trees. Also hear what sounds like *Jumariid* near by. And with brief glimpse perceived *Pyrocephalus*. This may be a flock. But if so, it is very diffuse.

Stopping Observations 10:30 a.m.

COMMENTS:

Obviously, cold windy weather does not favor the formation of mixed flocks!!!

This morning's observations also would suggest that, if large mixed flocks are not formed early in the morning, they will not be formed later in the day.

There seems to be very large variation in *allogregariousness*, from day to day, here. Possibly more than in all or most other parts of the Andes.

Nevertheless, it seems quite obvious that the "index of gregariousness" for this area is "centered" on 84%. At the moment, it is presently 82.54%. But today was a "bad day" for flocks. Yesterday, the index was 84%.

June 8, 1966
Wachin Picchu

Going to top of mountain, hotel side, this morning. Press straight up path. Reach 8900 ft 5:40 a.m. Clear. Relatively warm. No wind. Miscellaneous bird sounds already begun.

SEE TODAY'S NOTES ON MIXED DIGLOSSINI

Follow path considerably higher than I ever have before 17.03

am 9310 ft ^N ~~for~~ Th. cyanocephala 5 ft up in ~~low~~ mountain above
 top of VSTF. Flowsy. But apparently low

Wachus Peckee

SUM TOTAL: Crest and E-SE side 1964 and 1966
(For the latter)

Hours Spent = 33 23

Average no. inds. seen per hour = 9.55 ^{7.43}

Average no. inds. seen in flocks per hour = 7.88 ^{7.83}

Inds. seen in flocks as % total inds. = 82.54 ^{83.03%}

Average no. flocks seen per hour = 1.0 ^{0.94}

Average no. highly organized flocks per hour = 0.64 ^{0.63}

Average no. inds. per flock = 7.88 ^{8.06}

Largest no. inds. in one flock = 24 ✓

Average no. species per flock = 5.09 5.24

Largest no. species in one flock = 20

Martha Peckham 1966

Hours — Crest & East Side

1966

June 1	—	2 hrs 00 min
June 2	—	5 hrs 15 min
June 3	—	5 hrs 00 min
June 4	—	
June 5	—	5 hrs 15 min
June 6	—	5 hrs 30 min
		2 hrs 00 min
June 7	—	5 hrs 00 min

June 8

30 hrs 00 min
2 hrs 00 min

32 hrs 00 min

Machine Picking 1966

Hours - All other Areas 1966

1966

May 31 — Don't Count

June 1 — 5 hrs 15 min

2 hrs 15 min

June 2 2 hrs 00 min

June 4 4 hrs 45 min

1 hr 45 min

June 5 2 hrs 00 min

June 8 3 hrs 00 min

21 hrs 00 min

W. L. Packer

Jan 1, 2, 3, 4, 8

Great + E Side 1966

No Inds seen alone

(40) |||||

||||

(49)

1

(2)

No. Inds in Flocks

(40) |||||

(40) |||||

(40) |||||

(40) |||||

(40) |||||

(40) |||||

(40) |||||

(40) |||||

(235)

(247)

No. Flocks seen

|||||

(30) 1

(31)

No. Flocks Organized-Flocks seen

|||||

(18) 1

(19)

Largest no. Inds. in flock

24

Largest no. spp. in flock

20

No. spp. per Flock

3 13 10

3 3

3 4

2 6

3 20

12 8

4 8

2 6

3 4

9 2

5 4

2 2

6 4

2 3

3

2

14

27

41

(161)

(151)

Maudslayi Piccola Jan. 1, 2, 4, 5, 8

All other Areas 1906

No. Inds Seen Alone

(40) IIII IIII IIII IIII IIII IIII IIII
IIII IIII IIII

(54)

No. Inds in Flocks

IIII IIII IIII IIII IIII IIII IIII

(38)

41.33%
sic!

No. Flocks Seen

IIII

(6)

No. H.O. Flocks Seen

II

(2)

No. Spp. Per Rock

6

4

3

3

3

6

(25)

Largest no. Inds one Rock

8

Largest no Spp. one Rock

6

Southern Peru

(50)

May 17, 1972
Machin Picchu

SEE TODAY'S NOTES ON DIGLOSSINI

May 18, 1972
Machin Picchu

SEE TODAY'S NOTES ON DIGLOSSINI

May 19, 1972
Machin Picchu

SEE TODAY'S NOTES ON DIGLOSSINI

Comment. I am somewhat surprised by the general social behavior of the birds of the area now. It certainly is the non breeding season for many birds. And yet there is not more mixed flocking now than in 1964 or 1966. (On the hotel side of the mountain, more or less N, there may be less than during previous years.) This might suggest that mixed flocking here (as in some other areas, but apparently not everywhere) is a reaction to rain and fog (unfavorable? or favorable? conditions). This in turn might be further evidence that most of the flocking of most of the birds with which I am concerned is primarily for defense against predators rather than for food.

Is the behavior-ecology of the birds here really so reminiscent of the western corbellers of Colombia? If so, where?

Could it be simply - the birds are not as numerous as
id but still do not seem to be in the same place as the birds
birds (because the western condensation is too low on the whole
because the slopes of the mountains are too steep and rocky on
the south of Peru)

July 20, 1962
La Su. Peru.

SEE TODAY'S NOTES ON D. L. L. S. I.

6:30 a.m. E side crest pass. See several birds. No. 1000

Cy 01 2 Cy, 2 PL's, at least one large flycatcher, 2 Blue and Black
(local form seems to have light patch on crown), 2 Bristle-throats
or Hemispruces-types (White-striped), 1 Whistler (brown but
not seen), probably others. All (even PL's) 10-20 ft up in trees
with cup shaped pink flowers. Cy getting water, also glancing
at flowers. Most of the others also glancing. PL's and Blue & Black probably
taking birds and flowers. Cy sings frequently. Overlapped by singing
Thalass's but nothing else. During pause by Cy, Whistler
sings briefly. Overlapped only by Thalass's. Stops Cy singing again
as before. Then group, apparently moving as an integrated unit,
goes down into scrub. Last to view (fog is getting thick now), but
still audible 6:46 a.m.

A few minutes later, see group again. Much as before
one, but no singing. See Whistler this time. Group also in-
cludes a Sooty Thrush for a time. The thrush flies away. Whistler
follows. Most of the birds are hanging there many levels of vegetat-

1000 3-22-74. Quietly going uphill. Definitely, as expected.
 Note: Some birds on the side of mountain. The birds are
 very clear.

7:20

7:20. 1000 ft. on hill. 1000 ft. on hill. 1000 ft. on hill. 1000 ft. on hill.

4:35. 1000 ft. on hill. 1000 ft. on hill. 1000 ft. on hill. 1000 ft. on hill.

1000 ft. on hill. 1000 ft. on hill. 1000 ft. on hill. 1000 ft. on hill.

Then 1000 ft. on hill. 1000 ft. on hill. 1000 ft. on hill. 1000 ft. on hill.

A few minutes later, see 1000 ft. on hill. 1000 ft. on hill. 1000 ft. on hill. 1000 ft. on hill.

7:45. See 1000 ft. on hill. 1000 ft. on hill. 1000 ft. on hill. 1000 ft. on hill.

"whitetail" to this species alone. Calling the other just plain
 "slate-throat". Then slate-throats seem to be on edge of flock. Possi-

ble still the same flock as before. Includes both Whitetail and Cy.
 Both Whitetail and Cy. sing repeatedly, never overlapping one another.

They sing on same species of pink cup shaped flowers as earlier.

8:15. Go on to VSTF area. Very silent.

8:26. Hear more Cy songs overlapped by Thalass. Sounds

as if the Cy might be in a mixed flock.

Turn back at usual place 8:33.

CC
Thalassidroma

9:05 CC still in grass at 100m. 10:00 in grass at 100m.

Going over crest of hill.

Brown
Thalassidroma

A couple of hundred yards down a path from the crest of hill. Brown within 3 ft of singing Thalassidroma. No visible reaction by either bird. Further on, another Brown seen near road. Lands in low scrub. Utters Twitter and Chirp. Completely overlapped by distant Thalassidroma songs.

CC
Brown
Thalassidroma

Then see single CC perched 2 ft up in low scrub. No more than 20 ft from where Brown was seen a few minutes earlier. CC utters Twitter. Completely overlapped by Thalassidroma. CC flies away. A second (or less) after it flies a Thalassidroma comes and lands on the perch on which the CC had stood. Interspecific hostility?

Stop observations 10:15 a.m.

May 21, 1972
Markus Pickel

Going to work on road below hotel this morning.
SEE TODAY'S NOTES ON MIXED DIGLOSSINI

May 22, 1972
Markus Pickel

SEE TODAY'S NOTES ON MIXED DIGLOSSINI

1517

(54)

May 23, 1972
Walter P. Bickel

SEE TODAY'S NOTES ON MIXED DIGLOSSINI

October 14, 1963

C. A. M. & J. S. M. in the
area of the pond

There are a number of 10 ft diameter of vegetation
in the area 11,000 ft. and a 5 ft. diameter of vegetation
located in the area of the pond.

A few more of the 10 ft. diameter of vegetation
are located in the area of the pond.

Got out of the pond at 11:15 a.m. But
nothing to report about the vegetation.

Got out of the pond at 11:15 a.m. But
nothing to report about the vegetation. I am sure that there
is a number of 10 ft. diameter of vegetation in the area of the pond
but I am not sure. I am sure that there is a number of 10 ft. diameter of vegetation
in the area of the pond. Although it is dropping now. The day is cool and
there are patches of fog around. It is probably rained last night.

Got out of the pond at 11:15 a.m. But
nothing to report about the vegetation. I am sure that there
is a number of 10 ft. diameter of vegetation in the area of the pond
but I am not sure. I am sure that there is a number of 10 ft. diameter of vegetation
in the area of the pond. Although it is dropping now. The day is cool and
there are patches of fog around. It is probably rained last night.

Got out of the pond at 11:15 a.m. But
nothing to report about the vegetation. I am sure that there
is a number of 10 ft. diameter of vegetation in the area of the pond
but I am not sure. I am sure that there is a number of 10 ft. diameter of vegetation
in the area of the pond. Although it is dropping now. The day is cool and
there are patches of fog around. It is probably rained last night.

Another area found near 10,000 ft. 6:12 a.m. Vegetation
considerably thicker. I saw red tubular flowers. Some dark thistles
and some. Once I think I saw a *Rafinesquina* type thistle. Again there
is a small group of tubular red flowers which I have just discovered.
Several burdock plants around.

I don't think can be the breeding area for most of the species
as around here.

The local thrush here seems to be a different species from the
Audubon Thrushes that I have seen in many places. It has a brown
and legs coral - orange. Some call it a "thrush" but it is not
at all like the field I shall call it. I shall call it "the Brown Thrush".
Its song is very different.

Then see at 10:15 - a single bird in a bush. It is
gregarious. One bird perched on a branch and another on a branch
apparently hostile.

6:35 a.m. Later. A single bird in a bush. It is
apparently alone.

Fog lifting somewhat.

Then see single Atlapetes XXXVIII. In scrub. Not far from
where the first bellies first appeared, but apparently alone.
Going further down.

Brown

6:50 See a single Diglossa barroetensis sp. apparently alone
flying along bushes just at the outskirts of the scrub. 10:50

Then hear the same or another bird sing. Apparently in a scrub.

CC

Then see a single CC in garden near house.

A couple of dark thrushes near the village may be seen (or
the) other species - not the Black.

Then see another single Atlapetes XXXVIII. In scrub.
Possibly following a single Audubon Sparrow, but I doubt it.

Yes! The thrushes around here are a different species. Mostly
brown above, relatively dark on head and throat, quite light and brown
on breast and belly. Looks larger than Black Thrushes. Bill is
orange. Apparently no eye-ring. I shall call this "the Brown Thrush".
Single birds and pairs of Brown Thrushes around here. There

By 1917 - 1918

... I am rather surprised not to have

Go on part of the road for a ... long road to Coro-
- ... 10,500 ft ...
... 10,500 ft ...

... with yellow ...
... apparently associated with other ...

8:30 am ... moved flock. Possibly the
same one noted immediately above, but several hundred yards fur-
ther down the road. Moving some 2-13 ft above ground.
Probably didn't catch all members of the group. Included at least
one Whistler, XXXIX (this may have been the same bird or the
same species noted above — my earlier observations were so low
if that I could easily have made a mistake), at least 3 "Orange-
heads", XI, 1 warbler or tanager XLI, and one CC!

The Whistler appeared to be leading most of the time,
but this appearance may have been deceptive — in much the same
way as in the case of the other Whistlers in Chiriqui. It was cer-
tainly followed by the Orange-heads, at least occasionally; but I
think that they may well have been the "real" primary nuclear spe-
cies of the flocks.

I think that the CC joined this flock only after I had been
watching the group for some minutes. In any case, it was eventually
chased and supplanted three times by one of the Orange-heads!!

Made no mistake. But probably left the flock shortly after.

The Orange-heads did not attack any other species.

CC The CC may be very near the border of its range here. Just Hammer does not record it from the Andean area. Possibly it only winters (or breeds) in this area by becoming dependent on others. It may well be primarily a commensal of them in this area (see also Mit Hammer).

According to my taxi driver (of Mit Hammer again) the rainy season is December - April. So all or most of the birds I watched today were presumably in full non-breeding condition, but will probably begin to show traces of reproductive behavior some time in the near future.

In these circumstances, it is remarkable that I saw only one mixed flock this morning. General behavior perhaps comparable to that of the Andean birds - granted the difference in seasons.

Working below La Paz in the afternoon. Reach one spot, scrub under eucalypts, 3:55 pm 11,550 ft

CC See a single C. carbonaria ("Carbo") hanging in big bush about 10 ft above ground. Silent. Alone. Apparently typical of the subspecies. Same shape and size as other subspecies.

Going down, I see that this bush has some tubular pink flowers in it.

Now starting to pour rain so I return to the car. Rain gradually stops.

There are also some dark thrushes here. Large birds. Have not identified species yet.

CC See another Carbo In low scrub, 2 ft above ground

Carlo's This another. This is *Epuraea*, then flies up into *Eucalypt*.
 This is a new species and *Calamita* individuals in
 100 100

The whole group was 8, in a certainly much drier, on the average, than the Sponges where we were this morning.

as I can't see them for long. All apparently single. One Carlo shares
a small gray bird, probably of another species, but I couldn't identify the latter.

There is also one Orange-bellied Sittator (aurantirostris) here, in small trees. Ignores all other birds including smaller finches which are sometimes nearby.

4:30. Watching one of the single Carbo feeding inside very thick scrub. Usually 1-2 ft above ground during this. Probes in or at small dark purple trumpet-shaped flowers, apparently picks insects off blades large leaves, also probably probes in crevices and leaf bases. Then flies to top 25 ft tree, catches 1 insect by flycatching flight. Then disappears.

Hithered "Trit" is swirling feeding, nothing else
 One Carbo chases another in flight. Twice. Silent.
 Can hear an Orange-bell singing in distance

I think that a species of frigate like Poospiza also occurs here
Pairs & single birds. Usually well hidden in low scrub

Again see a Carib make a flycatching flight
May be significant, in this connection, that there are no White
starts here (at least now)

Go down to another area, 11,350 ft Little scrub & nothing to be

men.

Back to site started just this afternoon 3.25. Birds still there. I think that a couple of them have sung 1 or 2 song phrases. All phrases rapid hard twitters *mmmm*. Perhaps less frequent than those of most individuals of other subspecies.

The other finch noted above is XLII. I think that it is, badly Pooecetes hypochondria. I shall call it the "red-capped Finch".

October 15, 1923
Yuma, Arizona

5:33 a.m. Arrive same area Yuma - lower end as yesterday morning 10,725 ft. Raining gently, but no fog. Yet still quite dark.

6:07. Nothing that sounds like Diglossa song or anything else I recognize. Rain coming down quite hard.

6:15. Hear song phrases which sound like low-intensity Laptes songs. "Whee zu zu" -
Hear a single Black Phoebe's chirping - along road

6:55 a.m. Rain still continuing full force. Almost nothing moving about or visible, except thrushes and a peculiar type of warbler or furnard with orange and black striped head (XLIII). At least 2 of the latter were singing ca 6:25-6:35.

I presume that the rufinucha-like songs were being uttered by XXVIII. Hidden low-down in scrub and quite invisible.
Leaving for another area 7:15.

Get to the river, base of path to Cellatincara, 11,100 ft
Rain - still continuing

Getting lighter 7:35 a.m. Going to try walking again.
Come across mixed group in tree. Including at least 1 Fire
Vulley, at least 1 Orange-head (XII), and at least 1 *Parulotomus*
marbler, presumably XII. Also one *Atlapetes* with rufous crown.
Didn't see the latter very well. Looked as if it might be a PL type, but
perhaps more likely to have been a *ruficincta* type (XXXVIII).
Members of the group scatter, probably as a reaction to me. They
do not all move together in the same direction. *Atlapetes* and
Fire-belly just disappear. Orange-head and *Parulotomus* XII
stick around, flitting from bush to bush in an evasive manner.
Impossible to determine who is leading whom.

This group may have been a semi-fortuitous assemblage.
Gathered in tree only to get out of rain.

ADDITION: There was also one Black Thrush in a bush
close to the tree when I first saw the group. It left immediately.

About 100 yards away, come across 2 CC's. One feeding
by probing dead flower heads. Uttering "Trit" CN's at irregular intervals.

Then, only a few yards further on, catch brief glimpse of what
may have been a single *mystacalis*. Unfortunately flew away before
I could be sure of its identity. Apparently alone. Low inside
scrub about 2 ft above ground.

8:45 a.m. Come across what is probably the same mixed flock
seen earlier this morning. At least 100 yards from previous site.
Now includes at least 2 Fire-bellies, at least 2 *Atlapetes* (*disputa*,
ruficincta XXXVIII), at least 2 Orange-heads, and 1-3 *Parulotomus*

emus XXI warblers. Flock stays more or less together for approximately 15 minutes. Moves approximately 100 yards in this period. Movements of all members coordinated. Flock is not very coherent as a whole. Both Fox-bellies and Allspice are not staying some distance away from other members of the group. Difficult to tell who is leading whom. Probably the Orange-heads and/or the Brown-tan most of the time. But certainly not always.

1 Fox-belly j. —————>

1 Allspice j. —————>

Brown

One Brown (sic!) was associated with this flock, near the front, for a few seconds, but then disappeared from view.

Walking further along, I find a group of 2 or 3 Orange-heads XXI alone.

Still further on, a single Fox-belly alone. I watch this bird for approximately 5 minutes. Eventually it is joined and followed, probably briefly, by a single rufinucha XXXVIII.

Myrt

Then I suddenly hear a short burst of Diglena song. Sounds like short Peet song. Look up to find a single Myrtacates ("Myrt") feeding on pink cup-shaped flowers in tree 20-25 ft above ground. Uttering "Trit" CN's while feeding. Does not sing again while I watch it.

General proportions quite like Peet. Head relatively large. Mountaineer's shape broad & conspicuous.

Myrt

The Fox-belly and the Myrt are about 50 ft apart at this time. Apparently ignore one another. Then the Fox-belly moves on. A few minutes later, a pair of White-starts (XXXIX) appears in same area. Apparently alone. Again, both the Whitestarts and the

M¹ ~~1~~

get you to ignore one another

Then the first disappears from view

Leave myself 7:45 am.

Going to come back this afternoon as yesterday afternoon. Arr
4:30. Checked but no birds

Carbo, Long B. T., and Red caps all here

Carbo

One Carbo seen in the morning. It feeds in scrub 2-4 ft
above ground. Brown and white purple flowers. Apparently search
for insects

There is also at least one more of Thraupis bonariensis around
here.

Carbo have started in but no song

The Thraupis around here is the brown species

Carbo

Carbo-purpure long tubular pink flowers 10-20 ft above ground.
Thraupis considerable higher in eucalypt. But I have never yet seen one
feeding on eucalyptus flowers here.

C

I am surprised not to have seen C's around here. Is it because
there are too many small trees in the neighborhood? Or do Carbos
attack C's and drive them out ???

Carbo

Get a good front view of a "Red-cap." This bird is like the one
seen yesterday, except that it has little or no reddish on flanks (which are
gray). Lots of red on breast however

Carbo

One Carbo chasing another in flight. Silent. Followed by a
"Zu-zu-zu-zu" pattern by one bird.

Immediately after, I see one Carbo supplant another. Presumably the
same two birds.

Territorial defense is certainly being maintained now

Carbo

Then two Carbos land about 3 ft apart in same bush at same time. One utters ~~successive~~ "za za za za..." in long series of "za" notes at end. Presumably an end of twitter, but they are not so much more electrifying.

I have heard several similar phrases, and they are actually using the vocalizers. Perhaps the "za" notes are characteristic of this population.

One Carbo flying repeatedly.

Carbo

One Carbo utters song phrases. These apparently feeding notes. Each phrase starts out with one or a distinct "za" note, then "degenerates" into formless twitter. All phrases brief.

I think that there are at least 3 Carbos here.

Carbo

All Carbos here seem to come from one bush only, and all of them ground into a variety of notes at least 2 ft above ground. I dual certainly spends more time in low bush than in the air. I am not sure that this is true of the others.

One Carbo chases another bird which may have been a C. Leaving 6.00 pm.

Two morning's observations near Induani would suggest the following:

I: Mixed flocks are remarkably rare here. Less common, less varied, and less cohesive than many flocks seen in Colombia and Venezuela. Particularly remarkable because it is the non-breeding season here, while the flocks in the northern Andes were observed in the breeding season (more or less).

This difference may be exaggerated, however, by altitudinal factors. I have worked only at very high altitudes here.

II. The only species that seem to be regular nuclear around here are the Orange-bird and the Parula-like ones III.

III. The associations between Diglossini and mixed flocks here seem to be essentially similar to the corresponding associations in the northern Andes. Diglossini join mixed flocks - probably only to "escort" the flocks through their territories. This may be characteristic of all Diglossini everywhere (it may be apparently absent near Quito simply because there are no mixed flocks there).

IV. There do not seem to be many overlaps between many related species here. Viz the Diglossini. Situation here reminds me of southern Peru rather than Colombia or Venezuela.

NOTE: The mixed flock seen today was certainly not the same as the one seen yesterday. Areas quite far apart (at least 1/4 mile - probably more).

October 16, 1963
Mr. Induráin

Arrive site on La Paz - Induráin road, about 2 KM before Induráin, 5:40 a.m. 11,200 ft. Heavy mist again this morning.

First birds heard 5:45. Unfamiliar. Possibly some of them are thrushes.

Probably also some rufinucha. Puffing like those heard yesterday.

Going on 6:00 a.m.

Arrive nr. area where *Thryth* was found yesterday 6:15 in
 both rain and fog!

Think I may hear Brown in distance

One thing I forgot to say yesterday. With one exception, i.e.
 the *Basileuterus* ~~XXI~~, all the tanagers, warblers, honeycreepers, and
 finches around here are relatively very quiet. I have, for instance,
 heard only 3 or 4 songs (of the "Ja-ank" type?) by *Troglodytes*. This
 is an indication that they are all or almost all non-breeding now.

6:20 Can hear one of the Orange & Black-striped presumed four
 warblers (~~XLIII~~) singing as yesterday.

The *Thryth* is not visible when I get to the tree where I saw it
 yesterday.

7:30 am There was a mixed flock by sides 2 or 3 *Troglodytes*
 bellies, 2 *rufinucha*-type, and at least 1 - probably 2 or 3) *Basileuterus*
 shouldered ~~XXI~~ warblers. *Troglodytes* feeding (on insects?) in trees
 15 ft above ground and in scrub down to 1 or 2 ft above ground. *rufinucha*
uchas feeding in scrub 3-10 ft above ground. *Basileuterus* seen
 in scrub and trees 3-10 ft above ground. *rufinucha* apparently quite
 silent (but I was too far away to be sure that they weren't utter-
 ing CN's). The *Basileuterus* uttered an appreciable number of their
 usual rattling calls. And the *Troglodytes* were also quite noisy.

Uttered quite a lot of "looming" notes, a few "Tuk"s, and an appreci-
 able number of "twitter"s. (See today's notes on *Poecilothraupis*)

As far as I could tell, the *Troglodytes* were the leaders of this group.

They were certainly joined and followed by the *rufinucha*. And the
Basileuterus certainly joined the combined *Troglodytes* - *rufinucha* group
 up at least once.

One of the *Toucan* birds and one of the *refranchia* in the flock may have been the birds that I saw together, near the *Myrt*, yesterday morning. Probably some of the birds in this flock were included in the *Myrt* flock seen yesterday. In another area, probably, about 1/2 mi away.

As I am sure that I have seen at least three different mixed flocks in the region.

Probably all quite similar in basic structure. *refranchia* certainly appear to be followers. Regular attendants. *Toucan* may be ambivalent. Follow and/or join as well as follow and/or join? Or dual primary nuclear?

P. in utero XII may be active nuclear.

The flock seen today was unusually coherent. Birds moving together! At least 5 minutes (as long as I watched them).

It seems quite likely that some of the songs which I have heard and which I thought might be uttered by *Breus* were actually "twitterers" uttered by the local *Toucan* birds.

(As far as I can tell (and visibility is atrocious) the scrub-land here is only a couple of hundred feet below the paramo. Quite comparable to the area where there were so many *Taps* near the Paramo de Juana in the eastern Andes of Colombia. Except that there seem to be a few more medium-sized trees here. Probably wetter here.

9:00 a.m. *Myrt* in the main. During this period, I see a single *Myrt*. Probably not some individual seen yesterday. Some distance away. Feeding in tree, 10 ft up, on pink flowers same species as that visited by individual yesterday. Also in scrub 2 or 3 ft above ground. Possibly also visits yellow flowers in scrub.

April Individual apparently quite silent when feeding. Absolutely silent as Fire-belly flying by only a few feet away.

Some minutes later, in another area, some mixed flock. Composed of 4 or 5 large blue & yellow-tan ones (XLIV), one Fire-belly, and one Brown.

Brown The XLIV's fly from bush to bush and side to side quite rapidly. Tend to stick close together. Sometimes approximately 30 to 40 feet apart, but usually less. In low scrub, 2 to 10 ft. above ground, most of the time. Apparently feeding. Also visit ground in grassy areas interspersed with scrub. Apparently feeding there also. Quite noisy. One or more after bursts uttering high pitched, rather plaintive "Ja-zooooo zuh-zuh-zuh" calls at fairly frequent intervals. (There may be some variation in these calls. Possibly only 1 or 2 terminal notes in some cases.)

These XLIV's obviously pursue nuclear. Both the Brown and the Fire-belly followed and joined at least one of the XLIV's two or more times. (The Brown and Fire-belly did not join and follow simultaneously.) The Fire-belly appeared to move and feed in exactly the same spots as the XLIV's. Also visited ground. The Brown remained in low scrub, without going down to the ground.

Brown The Fire-belly was certainly silent all the time it was with the flock. The Brown was either silent or uttered call's which I couldn't hear. No song. No other indication of hostility.

The whole mixed flock was very coherent. Both the Brown and the Fire-belly kept right up with the XLIV's. Sometimes in front of the rearmost XLIV's. But apparently never in

the lead of the whole flock. Both went along with the XLV's for at least 100 yards (as long as I could follow them).

Brown
 Some time later, I saw a single Brown about 30 yds down hill from where the Myrt was seen earlier today. Certainly not the same Brown that was associated with the mixed flock. But it was in an area of low, open scrub, interspersed with grassy patches - just like the area in which the Brown with the flock was seen. These areas are quite different from the areas of thick scrub and low trees in which the Myrts have been seen. Possibly the Browns prefer, or can only occupy, relatively open scrub in this wet and high region. If so, the ecological separation of the three diglossini here is obvious. CC's are largely or completely confined to coconuts (probably usually or always relatively open areas) in the vicinity of human habitations. (Even the CC attached by an Orange-head, see p. 41 above, was quite close to the village of Kenduavi.) Browns are largely or completely confined to relatively open areas, both near human habitations and far away (probably most often the latter). Myrts are largely or completely confined to areas of thick scrub, usually or always far from human habitation.

General
 As far as I can tell, the territories of different species of Diglossini do not overlap in this region. But they can certainly be adjoining. I have seen a Brown territory adjoining a CC territory, and another Brown territory adjoining a Myrt territory. So far I have not seen a Myrt adjoining a CC.

Myrt
Brown
CC
 It is beginning to look as if Myrts are much less likely to join mixed flocks than are Browns (or CC's). Does this suggest

Must

that Myiops are more insectivorous than B. in this region?

7.30. See a pair of Tangara type tanagers ~~IV~~ moving rapidly and feeding in low scrub and on ground grassy areas. Quite conspicuous but silent. They ignore, and are ignored by, a pair of Fori bellies in a nearby tree.

It looks as if Fori bellies are quite willing to join mixed flocks — but only if the latter are particularly attractive, i.e. include some other conspicuous and preferably noisy species. In such flocks, the Fori bellies may be attendants or active nuclei. Apart from such flocks, however, the Fori bellies tend to go their own way. In such cases, they may act as a passive nucleus for other species, simply because they are themselves so conspicuous.

Arrive same place as yesterday afternoon 4:30 p.m.

Carbos not visible at the moment.

Then see one 4.45. Perched on bare twig about 10 ft above ground.

L. Flycatcher. Then flies away.

Carbo

These birds here are certainly flycatchers. They are smaller and even that the southern forms of carbonaria are less insectivorous than the southern forms of lutescens.

Then see a Carbo feeding in low scrub in usual manner.

One Carbo utters "freeeeeee - za - za - za - za" as it lands 1 ft away from another. Then both fly off.

Going back into another part of this scrubby area, I find that there are at least 2 more Carbos around.

Carbo

One bird lands about 10 ft away from another. Utters R — multiple "za" (at least 3 notes) as it lands. Then feeds by piercing large

2 tufts of pink flowers

A few minutes later 5:30 p.m. see a bird in a bush about 20 yds away. Possibly one of same birds. In definite "begging" type posture. Then or less common so.

Carbo



Upstart. Quivered very briefly and slightly, but rapidly. Slight trace TV & BV. Definite belly fluffing.

Apparently quite silent. As far as I could tell, alone. Facing in direction of an eucalypt about 30 ft away. Maintains posture for several seconds then flies up into eucalypt. Lost to view.

What in the world was this? Sex?

Leaving 6:00 p.m.

October 14, 1963
La Paz

Going to work in same area of garden-scrub in the city as yesterday afternoon. Arrive 5:35 a.m. Still very dark.

Humblers already noisy, but I can't hear anything else 5:40. Now a few other things singing. But none of my groups.

Going first to area where Carbo "begged" yesterday. Arrive 5:40. Still too dark to see well.

I have yet to hear an unmistakable *Diglossa* song. Just the Thrushes and other things are so noisy that I might well overlook a few twitters.

Lots of Andean Sparrows in song. Still no *Diglossa* song.
5:55. *Diglossas* cannot be singing much if at all.

There seem to be several *Carbos* flying about high (30 ft) in eucalyptus trees, but very difficult to see & hear.

6:05. Going to look at other areas.

Hear song coming from Eucalypt. I started plucking. All phrases are: "Ja-zee ta-zee ta-zee-zuh (uh)" Have heard similar song here during afternoon's previous days. Sounded as if they might be uttered by C's, but I have not been able to see the birds.

Carbo Finally see a *Carbo* 6:13. Perched on top willow 30 ft above ground. Silent. Flies into Eucalypt and is lost to view.

Carbo See 2 *Carbos* hopping about in hedge close together (1 ft apart). No sign of hostility. Silent. One continues moving along hedge, while the other perches, silent, on top twig. When the moving bird has got about 4 ft away, the perched bird suddenly swoops on it with "freeeeee za-za-za". Then both fly away together. Mated pair?

6:30. The *Carbos* are certainly unbelievably inconspicuous, on the whole, here this morning.

CC
Carbo 6:36. Ah ha! Finally see a single C, in hedge, in exactly the same spot where the pair of *Carbos* were seen earlier. Sitting quietly. Then flies away. Apparently no *Carbos* around at the time.

Carbo Two *Carbos* in flight. One utters twitter as it goes over my head. Possibly reaction to me.

I think this must be the same pair that I saw earlier. Stick-

ing together 4:50 a.m.

Carbo Well well. Pair back in hedge. One is certainly collecting n.m. Long strands of something then a brown. The other may be collect-
ing too. Both silent. One flies away (presumably with n.m.). The
other remains behind, feeding on pink tubular flowers. She flies
up into Eucalypt. Feeds on white Eucalypt flower? During feeding
twice utters brief series of notes when landing by itself. Brief R-
za-za pattern and/or abbreviated twitter. Then this bird suddenly swo-
ops at a passing hummingbird. Obvious attack. Then lands near
mate (who has come back to hedge) and utters brief twitter as it
does so. Then both fly away 7:25 a.m.

Carbo See pair again. About 15 ft up in Eucalyptus tree. The smaller
of the 2 birds, presumably the ♀, definitely feeds, twice, on white Eucaly-
ptus flowers.

Incidentally, the size difference between the 2 birds of this pair is
quite extreme.

It was clear weather earlier this morning, but it is clouding
up now. Looks like rain is coming 7:20.

One bird of pair back in hedge. Definitely utters brief twitter
when landing by itself. Then off again immediately. Back again. Silent
off again.

Carbo Pair of Carbo's back 7:38. Hopping along ground and from
bush to bush only a few inches above ground. ♀ collecting n.m. ♂ follow-
ing behind, making same notes, but not collecting.

Members of Carbo pair at least 50 ft apart in different trees.
Still, neither sings. Then join one another. Little or no "greeting."
Then land together in another tree. "Sooooooooo za za za" type "greeting".

Carbo Then see 1 Carbo alone in Eucalypt. Twice supplants a w. bird. (I think the big dull species - Patagona grisea)!

Pair of Carbos hopping thru Eucalypt. About 25 ft up & following close behind ♀. Utters "swee-swee-zah-zah" type calls each time he lands near her.

All birds generally less active now 8:15 a.m.

Then hear Carbo singing several song phrases from the top of tree. Humble

Both Carbos back, collecting n.m. or red wax to ground. At least, both are pecking at n.m. I don't know if both are pecking it up.

Carbo One of these birds seems to have a few rufous feathers on side of head! A trace of Brun-type mountaineer.

A flock of 4 Thraupis bonariensis flies through Eucalypts. Apparently not associated with other species. I have also now a few single birds of the same species this morning. Always alone. Always apparently silent.

8:35. A single C appears, apparently probing for insects, in top of willow tree 35 ft from ground. Utters many song phrases at irregular intervals. First relatively slow triplet phrases:

"Ja-a-zee ta-a-zee ta-a-zee-zuh"

Then slightly different triplet phrases. More or less like the ones heard earlier today.

"Ja-zee ta-zee ta-zee-zuh"

Then switches to fast twittering phrases, which I don't think I could distinguish from some Carbo songs.

Carbo This willow is certainly in the territory of the Carbo pair.

Carbo

The CC continued it repeatedly this morning. But the Carbos are not there. It was 12:20:20 while CC was singing.

Carbo

Then the CC disappears below a branch of the willow. Then it is apparently supplanted by one of the Carbos. At last, it flies out of the tree very rapidly, with a Carbo following close behind. Carbo continues pursuit for about 50 ft. Both birds relent. Then Carbo picks off. CC disappears.

Leaving 8:55 AM

Carbo

In view of the above, it seems likely that some of the chases I have seen here on numerous days were pursuits of a CC by a Carbo.

U

Carbo

Early this morning, before I was aware that there was a CC in the area, I heard a song "duel" between birds. In retrospect, it is obvious that the 2 birds were the CC and one of the Carbo pair. The CC was high in an eucalyptus tree near the hedge (there is a eucalypt which the Carbos visit frequently). The Carbo was high in a willow (the same willow in which the CC sang later, and from which it was chased). The CC sang conventional slow triplet phrases. The Carbo sang conventional twitters.

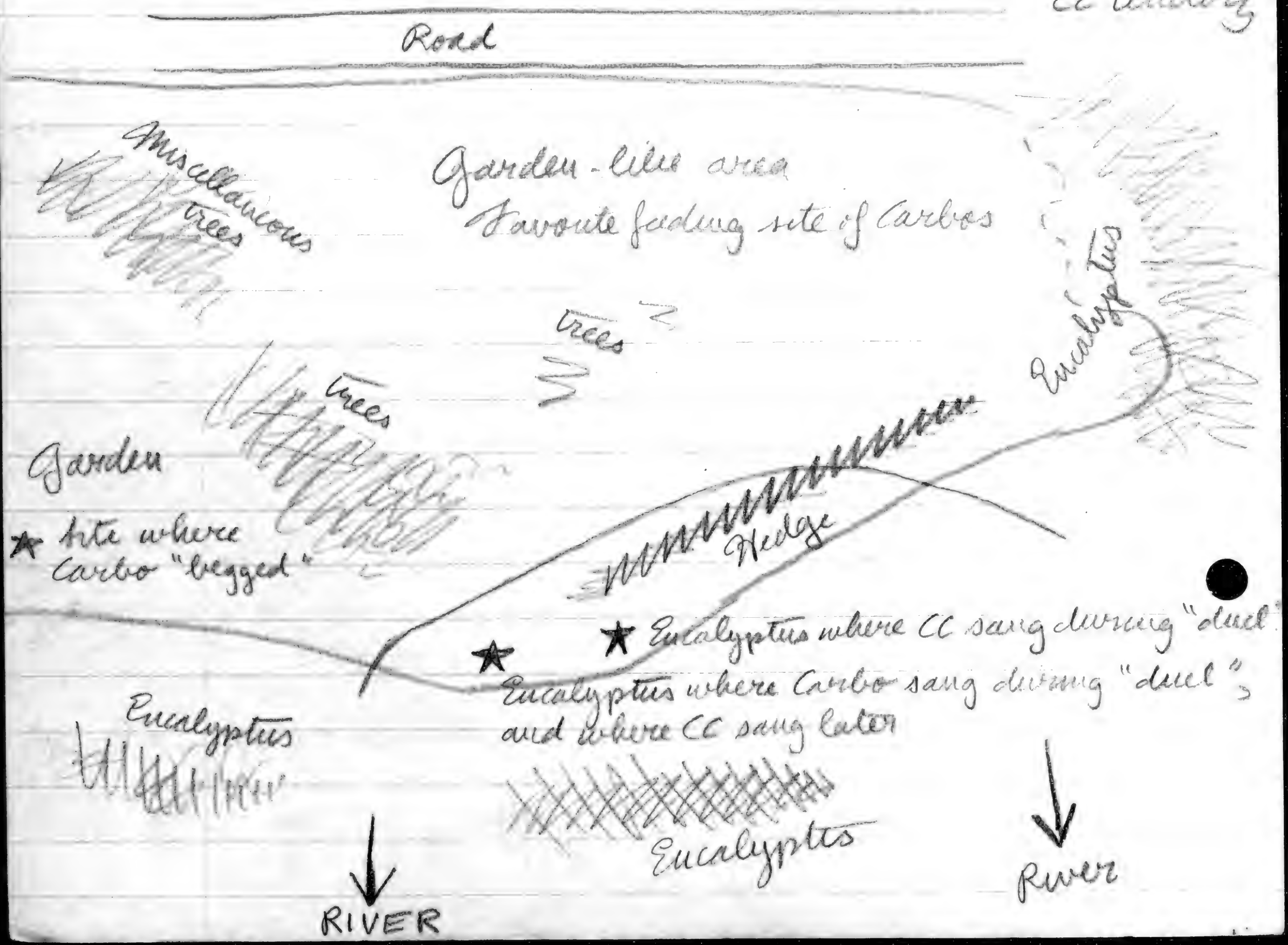
The sequence was as follows: 1 sequence of triplets by the CC (usually or always 3 essentially trisyllabic notes in succession) — 1 twitter phrase by Carbo — brief pause — 1 sequence of triplets by CC — 1 twitter by Carbo — brief pause — 1 sequence of triplets by CC — 1 twitter by Carbo — brief pause Sounded very much as if the Carbo's songs were a response to the CC's songs. There was absolutely no overlap between the songs of the different species.

Unfortunately, I couldn't determine exactly how the "duel" ended. The CC apparently just shut up, and so did the Carbo.

Carbo
 I have come to the conclusion that there is only one CC and one pair of Carbos here. I thought that there were more Carbos simply because the members of the one pair sang rapidly over a wide area (much larger than any other carbonaria territory I have ever seen — at least 300 yards long).

The general set up in the area seems to be more or less as follows:

- = known limits of the territory of the Carbo pair
- - - = possible boundaries of the CC territory



There is a road, above sloping ground which leads down to a river approximately $\frac{1}{4}$ of a mile away. The river runs more or less parallel to the road. Near the road is a large patch of scrub. Obviously an overgrown garden. Full of nice bushes, old vegetable plots, etc. Interspersed with a variety of trees, e.g. Eucalyptus, conifers, cherry trees, willows etc. This part seems to be the nucleus of the Carbo territory. On the river side it is bounded first by the "ledge", then by a grove of Eucalyptus. Beyond this the ground slopes down to the river very steeply. This part covered by Eucalyptus, with sparse undergrowth, much sparser than the overgrown garden.

(C) The territory (or home range) of the CC certainly overlaps the territory of the Carbas to some extent, but only slightly (see map). I have not been able to follow the CC carefully, but it obviously does not get into the ledge area very frequently. Apparently never gets into center of garden area. Probably most of its territory is in the steeper slope where there is little but Eucalyptus and sparse undergrowth. It seems likely that it has been excluded from the garden area (which would probably be the most desirable area for it) by overt hostility by the Carbas.

General Based upon the evidence of these few birds, and the little I have seen of the Andean birds, it seems likely that the inter-specific relations within the D-C complex here are quite similar, although not necessarily identical, to the corresponding relations in central Peru.

Carbo The rarity of songs by the ♂ Carbo here is obviously due to the fact that he has a mate and does not have any rival of

Carbo

the same species near by. Let us hope that this is not the reason why the Hudsonian birds are so silent!!

Carbo

It is highly probable that the "begging" by the Carbo yesterday was sexual. (Probably also true of the very similar performance by a single Cy at Mono.) Possibly a sign of unsatisfied copulatory motivation. Probably rare simply because it is uncommon, or even inhibited by, the presence of the mate.

In the afternoon go along road from La Paz to Mecapaca. Reach a place called Caynes, 10,125 ft. 3:13 pm. Plantation here in the midst of very dry country.

Nothing going on. Go on to Mecapaca itself. 10,050 ft. 3:45. Pure pear orchards.

Lots of Blue Tanagers around. Apparently all in pairs. Many song rather twittering.

Go on back to La Paz. Same place as this morning. Arrive 10 pm.

One Carbo sitting quietly in hedge. Then flies away. Lands further down in hedge. Stands in diagonal posture with belly fluffed way out.



Carbo

Apparently quite alone. Then flies away, out of sight.

What is this? Intention move of "begging"? Or reaction to me? Is belly fluffing hostile in this species (viz. the song posture of some Glors).

Carbo

One Carbo feeding high in willow, on tubular pink flowers of some other birds right beside. Uttering twitter as it does so. Just buzz off.

Carbo

Is uttering twitter rather than R-Zee as "greeting" an indication of activated sexual drive?

The landing bird in the above is about way have had its belly feathers slightly fluffed immediately after landing.

W

Then both Carbos disappear. Then can hear one brief slow triplet phrase, apparently by CC, in distance. 3:35 pm. Then see single CC probing quietly for insects in tree along it in middle of garden area! Then it flies to hedge. Probes for insects there. Then flies up into willow. Then disappears. Bird quiet throughout. Carbos out of sight and sound throughout.

CC

Carbo

So it looks as if this particular CC is sharing a large part of the Carbo territory. But it is certainly cautious about it. And it shares the Carbo territory less frequently than the CC's near Guto shared other territories.

Carbo

One Carbo chases another in flight. I thought, in fact, that there might be 3 Carbos involved in the pursuit. But I couldn't make more of this. A second later, the ♂ of the local pair is perched in a tree uttering song. Surprised! Apparently essentially identical with slow triplet song of CC! "Ja-zee ta-zee ta-zee" and "Ja-zee ta-zee ta-zee-zuh!" One phrase, and one only, begins like this and then continues into a long twitter. Then I see that the ♀ is collecting in m. on ground about 30 ft from ♂. He continues singing slow "Ja-zee" song. Then ♀ flies up into hedge, to where I presume is the nest-site. ♂ shuts up, and flies into eucalypt above hedge. Twice, in the next few minutes, he comes to a perch near me. Each time utters one brief phrase "Ja-zee".

type song.

Carls In this "Ja-zee" type song were normal or were hostile than the ordinary twitter ??? Or merely high intensity. (Looking over my notes on all Diglossini in the Quilo region and Chiriqui, I think that the latter is probably true.)

I think that possibly the whole basic repertoire of diglossini vocalizations could be summarized as follows:

General

1. "Song". Partly normal and partly hostile.
 - a. Composed of distinct notes — high intensity
 - b. "Ammers" twitter — low intensity
2. Harsh Notes. HAC, harsh "zee"s of CC, etc. Hostile. Probably high intensity.
3. R and/or rapid twitter. "Greeting" and aggressive
4. CN's. Possibly divisible into "Trit"s (hostile?) and "Tseeet"s (PN's?)

Carls In any case, it is obvious that both the CC and the Carbos here have both types of song — and I cannot distinguish between the species by ear alone.

Carls ADDITION: I heard a number of "greeting" and "candling" vocalizations by one or both of the Carbos this afternoon, in addition to the patterns noted above. As far as I can tell, there is complete inter

Carbo

gradation between typical R-Zaga's and rapid twitters. The Carbo's uttered almost every possible intermediate at one time or another.

October 18, 1963

La Paz

Worked in the same place this morning as yesterday morning and evening.

SEE TODAY'S NOTES ON MIXED DIGLOSSINI

Just before 9:00 a.m., I came across a group of 4 or 5 Th. bonariensis. In Guit trees (cheviches?) in bloom, and in Eucalyptus. I think that only one of the birds was an adult ♂ in bright plumage. All the birds were quite remarkably quiet, probably quite silent. Not associated with other species. Is this quietness an adaptation to keeping apart from other species? Otherwise the bonariensis, with the bright colors of the males and the dull colors of the females and young, and their gregarious habits, would inevitably tend to become the jamme nuclei of mixed flocks.

I think that the only really organized mixed flocks that we have are Spinus flocks. There seem to be 2 species of Spinus here. One looks like the Chiriqui species. The other is larger. The males of this latter are largely black, with yellow on the wing and the abdomen. I have seen individuals of these 2 species moving around together - but I don't know how frequently. Possibly the Spinus flocks attract other small seed-eating finches (e.g. Catamema) occasionally. They do not attract any bush-finches, tanagers, honeycreepers,

Ad. song have repeated more activity. Perhaps the absence of such activity is another indication that the birds here are not breeding yet.

Myx? 4:26. See first Myx ("A" bird) for long on pink flowers in same place as three days ago. I heard it appears immediately.

Myx? 4:35. Hear what I think is the second Myx ("B") singing three bursts. In dense high scrub. Not far from where I saw it the day before yesterday, but somewhat further from the (Arbo) (and the Brn).

Arbo? 4:55. Hear a very brief snatch of what may be the Arbo song anywhere it was for long.

5:30 Come across a mixed flock. Including one Orange head and 3 Black & Orange stripes. In thick bamboo scrub. Difficult to tell who could have been leading, because the Black & Orange stripes started to "mob" me. The Orange head certainly joined the Bl. & Or. stripes once.

A White-throated Thrush was apparently attracted by the mobbing notes of the Bl. & Or. stripes (heard "Tsk"s).

Catch glimpses of same flock a few minutes later. They have stopped uttering "mobbing" notes. Some or all uttering lots of "flee" or "fleeet" notes. Quite noisy in general. All very well hidden in scrub. Orange-head following?

Another few minutes, and I come across another, and much larger, mixed flock. Includes 2 Firebellies, 1 Montane GNT,

1 White start ~~XXXXIX~~, at least one of what I presume is Conurostrum

serripinnatus (Chang-Black-chest) ~~XLVI~~, at least one of the local

form of C. gutticolor ("Sitting"). Also several other small birds.

One or more of the members of the flock was uttering rattles. So I think that one or more of the other birds was (were) Parulantes.

XL

Whole flock in bushes and small trees, about 10 ft above ground, in area of dense scrub (the B. Flycatcher area - see below).

In addition to rattles, some or all of the birds were uttering lots of CN-like notes. Firebellies were turning their heads (as well).

As usual, it was difficult to tell who was leading the flock. All the warblers and warbler-like species (with the possible exception of the Whitestart, but including the cowbirds) were in the scrub, were or less sudden, much of the time.

The Firebellies went off in one direction fairly soon. The Mountain GNT followed. Some of the other members of the flock (certainly the Ferns) started to follow also, but then stopped.

About five minutes later, I found the 2 Firebellies, still being followed by the Mountain GNT, about 25 yards down the road. This behavior of the Firebellies may be typical. They may have been attracted to the group of warblers and warbler-like species, but they were not so attracted that they couldn't "break away" whenever it suited them. The smaller members of this flock were certainly much less attractive to the Firebellies than were the Bu throaups-types a couple of days ago. The Mountain GNT in this group may have reacted to the Firebellies simply because it was a single bird (viz. the contrast with the behavior of the pair of Mountain GNT a couple of days ago).

After the Firebellies and the GNT left, the remaining members of the flock just milled about, for at least 10 minutes, in an apparently disorganized manner, without making noticeable progress in any

particular direction. This seems to be characteristic of the "warbler flocks" around here. They don't have very good leaders.

Essentially, it is away from here almost all the warblers and warbler-like types have been orange heads or striped heads (orange & black, yellow and black, or white and black), with olive or dull bodies, and yellow or buffy underparts.

Essentially, all the warbler and warbler-like types flew off together. In exactly the opposite direction from that taken by the Finches and Mountain GNT. Couldn't tell who led this movement. Possibly a reaction to some movement on my part.

Almost all the time this mixed flock stayed more or less in the same place (at least 15 minutes), there was a single Flycatcher obviously the B bird, feeding on pink flowers in a tree only 10 ft (at most) away from the flock. As far as I could tell, the Flycatcher and the flock ignored one another throughout.

The most interesting aspect of the appearance of this Flycatcher was the fact that the tree in which it was feeding was the exact same tree in which the Carbo fed earlier this afternoon!! The Carbo did not show up while the Flycatcher was around.

Are the territories of different Diglossini overlapping here in the same way as in the Quito region ???

October 17, 1963
La Paz

Working in the overgrown garden in lower La Paz again this morning. Spent almost all morning watching Carbos. But

Myst

Carbo?

Myst

General

I did also notice that the Orange-bellied Saltators were even more active today than on previous days. Also 1 bonariensis uttered a few TII calls. All of which might suggest that many things are starting to breed now.

In the afternoon we go past Anduave again, but take the road that goes down hill, to Chulumani. Arrive spot 10,200 ft 3:25 p.m. Looks like thick second growth near a forest.

Nothing moving around, except a few small flycatchers and some Andean Sparrows. A few small tubular red flowers around, but not many. Some of them have Diglossa type warblers in them.

See a single Thrush near house. The Brown species.

Also a single White throat XXXIX. Apparently all alone.

3:50 See a most peculiar little mixed flock. 1 CC (the usual 100 yds from the farm house; 1 A. rufinucha; and 1 Basilentemus (TII or another — see note below). In very low but thick scrub. CC definitely leading! Followed for at least 20 ft by rufinucha. CC in scrub 1-2 ft above ground. rufinucha in similar scrub and on ground. Both apparently feeding. The Basilentemus followed them both for a few seconds, but I don't know if it continued long.

This Basilentemus looked quite like the TII above, but it was only dark on crown, not black. Are there two very similar species here?

All birds in this flock silent.

A few moments later we saw same Basilentemus alone.

A few moments later still, I see a pair of the Butleriapus - types (same as uphill) feeding in 20 ft tree above low scrub. Uttering "Ja-see-see-see-see" type calls. As far as I could tell, quite alone (but I am not sure that I could have seen small birds at this distance).

Rain starting 4:10

See some pair of *Butoraupe* some yards further on.

They are definitely alone. Moderately mossy. Moving through trees and bushes 6-20 ft above ground.

Brown 4:18. See a single *Bracon* flying on small tubular red flowers. In the same tree that the *Winterstart* visited. About 30 yds from where the *CC* was seen.

4:21. Go further down road, to 9000 ft. Hitting. The rain is beginning to pour down. Go on down to 7400 ft. We are now getting into cleared agricultural land & poor second growth. Rain getting worse and worse.

Pair of *Thraupis cyanocephala* flying in low scrub, 6 ft above ground, on steep slope of ravine (about 1/4 mile above river). Apparently alone. (There were a couple of birds, of unknown species, about 20 yds behind the *cyanocephala* at first, but I don't think that they were actually following.) The *cyanocephala* were quite noisy, uttering lots of "Tut" notes and one twittering warble.

Brown I forgot to mention that the *Bracon* seen this afternoon was in an area of moderately thick vegetation, but much less thick, and less tall, than the areas inhabited by *Myio* further up hill.

This *Butoraupe* is almost definitely *montana*. This afternoon I saw the blue stripe going down the legs. Also noticed that the nape is really bright turquoise only at the border of the black. Turquoise gradually merges into blue of the rest of the upper parts further back.

October 20, 1962
La Paz

Walking in the usual abandoned garden area this morning. It was my impression that the local *Thryothorus*, *Cyanocercus*, and Orange-billed Saltators were less vocal today than yesterday. Possibly because it was cold and damp.

SEE ALSO TODAY'S NOTES ON MIXED DIGLOSSINI

Walking in the Myrt region above Indio this afternoon
11,250 ft. Fog & rain as usual. Arrive 3:22

3:25 p.m. Come across mixed flock in very thick fog. Includes at least 8 warbler-like small birds, but I can only identify 3. 1 Myrt, 1 Orange head, 1 Black & Orange Stupe. All moving thru thick scrub 2-6 ft above ground. Some or all uttering lots of "Trit" (CN's) I don't know who was leading. Certainly not the 3 birds I identified. Flock moving slowly, but fairly cohesively, in one direction.

3:55 p.m. Come across a group of at least 3 fairy-like birds moving along tops dense scrub 10-15 ft above ground. Too foggy to see them clearly. Uttering nasal caws or whines, and probably whistles. Apparently alone. Not accompanied by other species.

Incidentally, the Myrt area is just about 1/2 - 1 KM short of the 50 KM (from La Paz) road marker.

4:10 p.m. Heavy fog again. Come across a small flock of warbler-like birds. Includes 1 Titi and at least 1 Pardalotus. The latter of the XLI type, but which species it was, if there is more than one species in this region, I don't know. Birds uttering a few "Trit" (CN's). In dense scrub, 6 ft above ground. Not moving very much.

1:25. Come across group of 2 ¹/₂ Forkbills and 1 Mountain GNT
 feeding in the about 15 ft above ground. In area of fairly open scrub.
 All birds quiet. Forkbills go in one direction. The Mountain GNT
in the other.

Myrt ADDITION: The Myrt with the fork mixed for the area this afternoon
 was almost certainly the A Bird.

4:40 pm Nothing in the title where the B Myrt and the Carbon
 fed a couple of days ago.

NOTE: I am making a record of every time I see a species which
 is likely to become associated with mixed flocks, whether or not it is alone
 or in a flock at the time.

4:50 Fog very thick and continuous. Rain stopped.

5:00. Come across a single Forkbill in low open scrub. Utter
 ing SN-type notes, but definitely not accompanied by anything else.

Leaving 5:15, as I can't see anything and nothing seems to
 be moving anywhere.

After working here several days, I have the definite impression
 that light rain and/or fog (or intermittent rain or fog) stimulate
 most of the local birds to become active (and form mixed flocks).

Both heavy, steady rain and/or fog, and the complete absence of rain and
 fog, seem to depress activity.

October 21, 1963
 Near Induvu

Going to work in Myrt area again this morning. Arrive 5:35.
 Perfectly clear morning!!! Starting to get light.



Bird flies off 5:35. Apparently to
go with down hill.

Also heard quite high intensity. Perhaps Frickellies are begin-
ning to breed.

Bird is quite vocal after going down hill. But I can't hear
it well enough to analyze the calls.

A Myrt has not appeared or sung yet 6:00 am. I have been
watching its favorite pine flowered tree. Then hear it, quite far up the
hill, 6:01. One long song phrase.

I have heard lots of Bunkertones-like rattles from the beginning
of this morning, without being able to see the birds.

6:05. Large B.C. Or. stripe singing steadily for minutes on end
"Touh tree touh tree touh tree touh tree" with
occasional single extra "tree"s interspersed. Bird sings this from a
variety of perches, all high & exposed tops of bushes dense scrub. From
apparently unmutualized postures. All of the notes of this DC are buz-
zy, but not enough so to say that they have rattle undertone.

Same bird still continuing 6:14. Now interspersing occasional
extra "Touh" as well. Doesn't stop when pair of Frickellies pass by.
Unfortunately can't see bird now. Finally stops 6:18.

6:20. Hear what sounds like Myrt song far down hill from
A Myrt area.

6:25. Come across a single rufinucha in low scrub. Alone. It
sings CN's. CORRECTION: It is a pair. And one bird utters repeated
songs when only a few feet from its mate. "Ja whecoo wheu" phrases.
Then I can hear what is almost certainly another rufinucha some
distance away. Utters "Ja wheu wheu wheu" phrases.

6:30. Hear more apparent Myrt song. Focus to be between 1. & 2. Myrt areas. Again. No! I think these songs are being uttered by the local Whitestart! A single bird alone!

Can hear another Bl & OX. Stop singing "DC"

6:35. Can hear a little group of 2 or 3 *Parus* in trees. Uttering lots of R's. In low scrub. Can't tell which species. *Myrt* alone.

Whitestart apparently joined by single *Foules*.

See a single Montane GNT alone in low scrub. When it is followed by mate 20 ft. behind.

The Whitestart moves on. Apparently not followed by the *Foules*. 6:40. (I can now confirm that the Myrt-like songs are uttered by the Whitestart.)

See pair of *Foules* in tall tree. Very vocal. Lots of twitter. Sometimes preceded by some *Myrt*-like notes (almost "ta tree" - presumably related to "Ja-ah" *Myrt*-birds). Alone.

Then see single Montane GNT. In low scrub and on ground. Alone. Quite silent. (The other GNT's seen this morning were also silent. This seems to be a very quiet species.)

6:53. Things quieter now. Sun out and strong.

No sign of B Myrt or *Carbo* in tree where they were seen before.

Myrt 6:55. Hear several more presumed Whitestarts singing. Their songs seem to differ from those of *lafronayeri* sp in being essentially compound of triplets "Ja-tah-luey ta-to-huah" etc.

7:00 am. Pair of *Parus* fly into tree where Whitestart is singing. Probably same pair seen before. The tree was in their line of march so possibly they weren't really joining Whitestart. In any case, they go straight on without joining. And Whitestart doesn't follow.

These *Basileuterus* were quite noisy. Lots of rattles. And this time I got a good view of one of the birds. Definitely black crowned, XLI (possibly *myiarchus*)

A single Fork-bell flew by Whitestart and *Basileuterus* when they were close together. It made no attempt to join them, and they made no attempt to follow it.

7:15 Come across pair of *myiarchus* and pair of Whitestarts in same tree. Fall the moment low bird is near. One Whitestart sings. The *myiarchus* pair utter "Tid" CN's. The *myiarchus* eventually move on, while at least 1 Whitestart remains behind.

7:40. Everything very quiet. And hot!

A single Fork-bell flew by. Alone. Uttering "Tid" in flight.

8:00 a.m. Whitestarts still singing occasionally.

8:20. Come across mixed flock, in high but obviously second growth scrub. Rather scattered. Flock includes lots of birds. Only identify 2 Orange-heads, 1 Fork-bell, 1 Whitestart, 1 *Ochthoeca*. Flock not very noisy. Moderate number of CN's. Fork-bell near lead at one time, but not actually in front. Whitestart flying all around outskirts of flock; definitely not leading. 1 Orange head j —————→

The other Orange head was way at the rear of the flock, the last bird in fact.

I am becoming convinced that the Orange head is almost always a follower and joiner.

Clouds starting to come up a little 8:25. But it is still hot.

8:40 a.m. Come across another mixed flock. In mixture of the ^{light} scrub. Includes a lot of birds. Of which I identified 1 Orange head, 1 Fork-bell, 1 Whitestart, 1 Littering, 1 ^{Black-chinned} ~~Fork-bell~~, and 1 *Basileuterus* (probably XLI). 1 case of Orange-head j —————→

1 case of *Prioniturus* ? \longrightarrow

Once the Whitestart made a long flight from tree to tree. Every body (including the Firebelly) followed! Then, a few minutes later, the flock as a whole went off in one direction, while the Whitestart went in another. This time nobody followed the Whitestart!

Again this flock gave the impression of being all followers and no leaders.

The Sittie was never near the front of the flock.

Most of the birds were quiet. Only CN's. But the Whitestart sang repeatedly at irregular intervals. Sang very distinctive. Consisted of 2 or more identical phrases. Each phrase commences:

"Tsa tsa tsa wee 

This flock was near the 50 KM marker. May well be larger, the same flock in which I saw a Sittie before.

Other Whitestarts still singing 9:05 a.m.

9:10. Hear one burst of what sounds like Carbo "Tazee" type song. In area of dense heavy vegetation, not far from where the Carbo was seen a few days ago.

9:20. Still no sign of either Myrt. It certainly looks as if they can't stand sun or heat!

9:28. Pair of Firebellies fly over head uttering "fearful" s. alone.

I forget to mention that one of the Orangeheads in one of the mixed flocks observed this morning uttered loud "Zee" Notes. CN's?

Leaving 9:33.

As a result of this morning's observations, I think that the local Whitestart (~~XXXX~~) and the Bl & Or Flycatcher are probably much

General

ing (see also Kitchener's notes on Basileuterus tristriatus)
Possibly the Basileuterus III and the five bellies are also. But the
S. gosses in this area certainly are not

NOTE: The "Blue Jayagers" seen below Guito (p. 64),
belonging to Kitchener, are really Thryothorus sayana

October 22, 1963

Above Embudo

Working same place as yesterday. Arrive 5:41. Clear, but
it feels as if clouds are coming up rapidly.

Dawn chorus moderate when we arrive. At least 2 thrushes
as singing like bird heard yesterday. One of them certainly the same
bird.

No record from A Flycatcher.

The singing thrush certainly has yellow or orange eye ring.
But it doesn't seem to have white throat. Looks like Brown except for
eye ring.

5:50. Lots of rattles which sound like Basileuterus III. But
I can't see the birds. Also lots of few voiced rattles.

5:55. Hear one song phrase that sounds like rufinucha.

6:00 am. Hear a few more rufinucha-like phrases down hill.
Then a lot of songs that are probably a Whitstart.

Whitstarts are usually or always semi-hidden when singing.
Not on top of trees and bushes.

6:07. Hear Bl & On Stupe singing. Not same bird as yesterday.

Oh Dear! 6:10. Come across a single Whitstart singing.

B+L

readily. Going from tree to tree within an area of at least 50 x 75 yds.
foraging in each tree. Area of rather high but not very dense, open
second growth scrub. When first seen in a tree 30 ft high
also in same tree was a pair of Coucorostomus. Then in same
the real ferrogymnometra, I think. Number XLVII, not XLVI.
I shall call them the "Blue & Chestnut Cones", and the ferro (which
I have been calling "Fovius"), I shall call "Dark-birds".
The Blue & Chestnut Cones were probing for insects in dead flower buds
and in leaves. Apparently ignoring singing Whitestart. When the
Whitestart flies over to another tree, 20 ft away, and sings there.
This tree has a "Fovilly" in it! "Fovilly" quite silent. The Blue
& Chestnut Cones do not follow Whitestart to this new tree. Go
on feeding in old tree, then go down to bushes to feed (apparently
looking for insects); then disappear down hill. Silent throughout ex-
cept for a few soft "tut" "CN"s. After a few minutes, the White-
start flies to a third tree, 50 ft away, and sings there. The "Fovilly"
does not follow immediately, but it eventually drifts off in the
same direction, 2 or 3 minutes later. This movement by the "Fovilly"
may have been largely "coincidental".

B+

6:30. See a single Barkentomus, definitely III, hopping thru
low scrub in semi-open area. Uttering harsh "cha"s. Very loud.
Quite alone

It would seem that the mixed flocks have not really formed
yet this morning.

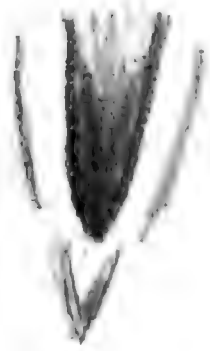
B+

As far as I know, I have never seen any other diglossine
exactly where the Blue & Chestnut Cones were.

Then 6:35, come across first mixed flock. Don't see first birds

of the group. From the sounds they were making, consisted of 2 of the
Pr. leucurus that utter rattles, and 1 Orange headed. Definitely joined
 by a pair of *Ph. Orange* Huppes.

The "black" crown of *Pr. leucurus* XLI is not, I think, really
 solid black all over. Blackest at front. Top view of the head is black
 more or less comme ça



Everything very quiet now 6:50. They sounding over. Not too
 warm.

Whitestarts still singing occasionally 7:00 am

Sitta Come across big mixed flock just past KM 50 mark. 7:10. Pres-
 umably partly or completely same mixed flock seen this area on previous
 days. Definitely identified 1 Towhee, 2 *Basileuterus* XLI, 2 Mont
 and GNT's. Possibly 1 titling, certainly others. All uttering CN's.
Basileuterus XLI also definitely uttering rattles. Now. Towhee
 flies across road. Followed by GNT. Then joined by all the others
 (including the *Basileuterus*). Most of the time all members of the flock
 were 2-10 ft high in trees and bushes dense scrub.

Come across same flock, or part of same flock, further on a few
 minutes later. Now includes 1 Whitestart which sings a lot, the *Bas*
ileuterus XLI still rattling frequently, and I don't know exactly what
 others. Whitestart makes long silent flight from tree to tree. Then the
Pr. leucurus XLI drift off in same direction, apparently following, but
 hopping from bush to bush.

7:45 Going back before the 50 KM mark, I come across another mix

Settling

ed flock which may be the real 50 km flock or part of it. Includes 3 Black-chucks, 1 Whittentant, 1 Orange head, 1 L. fly, at least 1 referred and probably others. Also 1 White-bellied flycatcher like the one associated with mixed flocks in Colombia. Moving these trees and bushes open and growth sparse, in general direction 50 km away.

The Black-chucks seemed to be in the lead most of the time. Possibly just because they knew where they wanted to go, and kept moving there fairly steadily. It is my impression that any definite steady movement not involving distant flights, by any bird is apt to pull the whole of any of these mixed warbler flocks along with it. Not very noisy. Uttered some "Tut CN's", also molding notes, loud and harsh, when 2 Black-chucks came close together.

I see that the Black-chuck has grayish crown patch. Therefore presumably a Basilentemus.

Orange head definitely followed at least once. So did L. fly. Both quiet or silent.

The Whittentant sang a few times while associated with flock. Night-like song.

I didn't have an awfully good view of this Whittentant, but it seemed to have so much black on cheeks that the yellow around the eye was reduced to little more than "spectacles". Are there 2 species here ???

When I first came across this flock, there was a F. fly about 20 ft away. It went on in another direction, apparently ignoring the flock.

Settling

NOTE: The L. fly here has a lot of blue on side of head so that black appears to be divided into crown patch & cheek patch (presumably meeting in front of the eyes).

7:30. All up with single Whitestart still singing quite frequent
ly. Flyt-like song. No other birds can't be heard.

Then as it feeding. It's quite a lot of yellow above eye. B & black
stroke thru eye and across dark reaches back to black on rear of head.

same as



Then we heard actually singing. (R during song. Definitely Flyt-like
song (the bird without twitter)

So I am fairly sure that there is only 1 species of Myioborus here
Possibly with considerable individual variation.

8:40. Now I see that there is a single Flyt-like in the middle Whit
start. Don't know who joined who.

This species of Whitestart does less spectacular flycatching than
any other species with which I am familiar. Most of the time feeds like
Phaethon or Cowbird searching & probing. When it does make a
flycatching flight, the flight is apparently always short. Little or no rattle
sallying. I.E. when it does catch an insect in air, it often fails to return
to the same perch from which it left.

8:50. Whitestart sings Flyt-like song up hill above or on edge
of A Flyt area. This bumps A Flyt flying up hill, half way to where
Whitestart is! Then Flyt disappears in scrub. I.E. it looks as if the Flyt
thought that the Whitestart's song was Flyt-like too !!!

Can the Whitestart and the Flyt here "afford" to have similar

Myst songs because their breeding seasons are different and they sing only in the breeding season?

(I presume that the second bird involved in this incident was a *Myst*, albeit I saw it only in flight. Dark, obviously *Diglossa*.)

The sun has been shining almost steadily for almost an hour now 9:00 a.m. Helps to explain why *Diglossas* have been so conspicuous.

Still another Whitestart singing 9:10 a.m.

9:25. See a group of at least 5 *Prioniturus* presumably *XL*, moving thru low open scrub. Definitely alone uttering lots of single "Tset" notes. No trace of rattle.

Noticed that in one of the birds only the front 1/3rd of the crown was blackish.

If there should be two sibling species of *Prioniturus* of this type here (which I very much doubt), then these last birds may have been examples of the second type. (Actually, if there is another species like *XL* around anywhere, I expect that it is lower down, on the road toward Chulumani.)

B+C NOTE: In case I did not make it clear above, the Blue and Chestnut Cones were seen in an area of low but rather thick scrub interspersed with occasional small trees. Little or nothing in the way of the red & pink flowers favored by *Diglossa*.

As a result of observations today and yesterday, it may be possible to make a partial summary of the probable roles of the species occurring most frequently in the "mixed warbler" flocks here (above Huduani). As follows:

(1). The Black chick. Regular. Probably passive nuclear (to word other species). Possibly nuclear only because it knows where it is going.

(2). Bandentoms XLI. Regular and nuclear. Both passive and/or active nuclear. Passive nuclear because it is both noisy and brightly colored. Follows & joins several other species, and is followed and joined by several other species.

(3). Orange-head. Regular. Possibly nuclear? Definitely a follower and joiner (of several other species).

Sitta (4). Sittic. Regular. Attendant? Definitely a follower and joiner (of several other species).

(5) rufinucha. Regular? Attendant? Definitely a follower and joiner (of several other species).

(6). Whitestart XXXXX. Occasional. Otherwise similar to Bandentoms XLI (passive and/or active nuclear, etc.)

(7). Foxbelly. Same as Whitestart. Both these species are occasional for two reasons. A. They sometimes do not join or follow other species. B. They sometimes leave mixed flocks silently, and/or by long distance flights (other members of the flock do not follow in such circumstances).

(8). Mountain GNT. Occasional attendant. Inferred
a follower of the Firebelly.

(9). Black & Orange Stripe. Dubious as yet. Occa-
sional attendant, at least in most cases? Possibly parame nuclear
to the Orange-head?

These "mixed warbler" flocks move through all sorts
of dense scrub around here, both high & low, apparently mature
and apparently second growth. Occasionally move thru open
scrub, but this seems to be relatively infrequent.

Incidentally, the whole top of the mountain above
Induani where I have done all my work (in this area) gets the
sun at dawn (if there are no clouds or sun).

In some rather undefinable way, the "mixed warbler"
flocks here seem rather unspecialized. In particular contrast with
the mixed flocks near the Paramo de Quasa in the eastern Andes
of Colombia. The latter appeared to be composed of specialized
followers who had lost their leader. Most of the birds in the "mixed
warbler" flocks appear to be "semi-followers" who have never
had a real leader.

October 23, 1963
Below Induani

Taking the road to Chukwani this morning. Arrive place
where CC and Brown were seen a couple of days ago 5:40 a.m.

10:20 Still dark, so fog is coming up. But fog is still above us, not down near ground

Quite a lot of down-homes when we arouse, but nothing I recognize. Probably themselves to a large extent. Still nothing familiar & 52. Still too dark to see

The trace of *P. americana* still rather. Or *hirsuta* song. Possibly a little *rupicola* too. *C. borealis* song in light at times with the *C. hirsuta* song.

6:02 Still no sign of anything in bushes. Down-homes just by accident

All the undergrowth here now, well be covered growth

6:10 More song by presumed *rupicola*. Different bird

6:12. See single *Butorides* in trees along stream. Uttering usual type notes. Then another, same trees. Undoubtedly pair seen before. Apparently alone. Yes. Flycatcher. Not followed by anything.

Fog has gone 6:18

Then hear what does sound like Towhee. Can't see the bird.

See pair of Thrushes. Browns? Alone

Single *Butorides* back. Alone. Then joined by mate. Both feeding in trees along stream, 30 ft above ground

Just presumed *rupicola* still singing as before 6:37

6:45 Pair of *rupicola* moving thru low open scrub. Apparently alone

6:55 Come across group of birds in dense scrub. Probably 2 or 3. One is Orange-bellied. The other(s) may be too. Uttering "Zee" notes. One or more of the birds also uttering twitters which sound very much like those of the Towhees up above, but slightly more guttural, I think. Prob-

ably also rattles.

At the same time I see these birds. I see a pair of Foxbellies across the road, 50 ft away, in trees. uttering PN's. The two groups apparently quite separate.

Then see a single Whistler. Same species as above. XXXI. Along. Feeding and singing in small trees. Song very different from the type including a lot of rrrrrrr.

See same pair of Foxbellies 14:12. Still alone.

There are really at least 3 Whistlers around. Flying. Apparently hostile chasing, with lots of hard sound "Tou tou tou tou tou tou tou..."

See a single *Psittaculirostris* going thru scrub. Alone. Low, only a few inches above ground. Looks like XII, except that crown is dark, not black, even in front. I shall call this bird XLVIII. utters a few rattles quite like those of XII. Are they really the same species?

See same bird a few minutes later. And now realize that it is accompanied by its mate.

7:30. See single *Diglossa*, presumably *Bruni*, feeding on tubular red flowers where *Bruni* was seen feeding a couple of days ago.

It certainly looks as if the birds here are not forming mixed flocks. Why? Preying? Or not enough species capable of functioning as parasite nuclear?

7:34. See single *rufigula* again. In low open scrub. Alone.

7:40. Go on down hill, to abt 9800 ft. Pair of Foxbellies flitting about in low scattered scrub & isolated trees. Very noisy. Quite as noisy as Quetz birds. Variety of calls. Rattle and other peculiar things. Lots of PN's.

Brun

The birds are quite close at first. Then a single Brun appears. He goes back to back and tree to tree, in general neighborhood of the first bird, without, however, coming closer than 15-20 ft of them.

The Brun sings a variety of notes of various pitches. Especially in all bushes, among on edge grassy patches. (There is a very, very watered scrub — patches of grass all over the place) Songs are generally very twittering — just like songs of *Brunia* I have heard elsewhere. Quite different from songs of *Corvinus* in La Paz.

Brun

This Brun is singing enough to suggest that it may be breeding. Brun also feeds on more or less tubular red flowers (of a species I haven't seen before).

It seems to have a very large territory, well over 100 yds in one direction.

As far as I can tell, it is pure Brun. No trace of *Corvinus* character.

Go on further down to 7600-7550 ft area. This is where I saw the *Th. cyaniceps* the other day. Area is in the sun now, 8:03. (First sunny area we have been in today).

Brun

8:10. Find another Brun singing steadily on top of 25 ft tree. Phrases after phrase. All twittering. Tree is in middle of thick but low and obviously impoverished second growth scrub. (There are a number of farm houses near here, perhaps a village).

Further on, come across a pair of *White-throats*. Same species. One of them uttering *Thypt*-like songs. In *Eucalyptus* trees.

Brun

It is interesting that the Brun songs here are twittering, even though the birds are singing a lot. I.E. even the high intensity (although not necessarily the highest possible intensity) songs of this form are not slowed down.

was apprehensive

8:23 am see a single through. Looks brownish, but has a definite yellow or orange eye ring.

see a single Orange head in low scrub in garden. (This area near house. Above good beaver's. It is carrying mud (for a tunnel) in its bill.

Brown 8:35. see what is probably another Brown. Flies in to sight at about 35 ft above ground.

Then see a single rufinucha in garden area. Apparently alone. Orange head back. Apparently picking insects off flowers in scrub along edge of garden.

Brown Brown feeding on red flowers (same species as at 7:00 ft).

I think that the Orange head tends to utter R's when landing. (apparently alone - but it is not inconceivable that there is a mate around. Diglossini-like?)

Brown attacks & chases hummingbird 8:31

Brown There are really lots of Browns around here. All apparently single. Males incubating? Songs still common 8:35. One bird makes a song flight (This took me by surprise, but I think that the "song" was largely R.)

Orange head flies by again. Going to presumed nest-site. This Orange head's area certainly overlaps several Brown territories. This bird utters lots of "Zeeet" CN's while feeding, and when flying away from the nest site, but not when approaching the site.

7:05. Pair of cyanocephala feeding in trees near garden. Apparently alone.

Brown The population of Browns here is as thick as any population of carbon

11/22 2:20 am seen

11/22 2:20 am seen (probably same place as before) and Orange-headed (not including breeding bird) in same tree 7:10. It is that the 2 species then went in different directions. If not, the Orange-headed followed the cyanocapitata out the river.

Leaving 9:25 a.m.

Today's results seem fairly conclusive. The birds at 9000-9550 ft are breeding (and so, probably, are the birds at 9800 ft). And they do not seem to show anything more in the way of mixed flocks than the birds of Guila or central and southern Peru, at the same stage of the breeding cycle.

Incidentally, the area at 9000-9550 ft here is right at the base of the slopes on which I have studied Myiops and other birds above Muluwari. Intermediate parts of the slope are well covered with good forest and scrub. I.E. perfect intercommunication between the 2 areas is possible.

The area at 9800 is just across the valley of a small river from the 2 areas.

October 24, 1963
Below Muluwari

Working 9000-9550 area again today. Arrive 5:42 a.m. Heavy fog (and light drizzle). Still dark. Not much dawn song where the car is parked (slightly up the road from where the nest-building Orange-headed, and most of the Browns, are

Brown. Hear what sound like first Brown twitters 5:47 a.m.

Nothing like DC heard yet 5:52

Heaving near area where Orange head was seen carrying
or m. yesterday.

5:56 something singing loudly like seen seen seen
"uphill" still far too dark to tell
Probably several birds are uttering this DC? Still continuing

6:04

Brown

6:05. See what may be an aerial display (song) flight by
Brown with R instead of twitter

6:11 Pair of Whitestarts flying alone

"DC" stopped some minutes ago. I never get a glimpse of
bird uttering it

Brown

Several Browns singing quite vigorously 6:15 a.m. All song
phrases rapid series war notes. Apparently pure twitter, with some
R components distinctly set off from the rest.

6:21. Near first Whitestart song

Brown?

6:23. Another "song" flight with R alone. Still can't tell
if it is really Brown doing this or not.

6:26 See a single yanocophala alone.

6:30 See same yanocophala still alone. Perches in top of tree
20 ft above ground. Utters about 5 or 6, Diglossa-like song phrases
"tazee tazee tazee tazee". Possibly, in some cases, with brief twitter
at end?

6:35. Finally see Orange head! Alone in low scrub. Apparently
feeding on insects. Utters "zeet" notes. Possibly also soft R's when
landing.

Then see pair of yanocophala. Alone

Brown

In pouring rain, as rain is just too heavy to continue
walk back up road to 20. I have and see another Brown
near place after place. Perched about 20 ft up on top of tree.
All places twitter without apparent & consistent

7:40 a.m. Rain letting up a little

7:43. See a single Brown Heron here

Whittkats still singing

Brown

7:55. See 1 or 2 Browns near 1 or 2 rufinucha. No apparent
reaction between the 2 species

Then see single Brown. Alone

8:00 Orange-head back near nest. Heron. Alone

Then see an Orange-head, probably (?) the same bird, uttering
"Zeeeee zeeeee zeeeee" in flight. Apparently alone.

Catch several more glimpses of cyanocephala in both trees
and low scrub. Sometimes a pair, sometimes a single individual
(probably one of the members of the pair). Noisy (see today's notes on
Thraupis), but usually alone. Even when found in same tree or
bush as individuals of other species, the association seems to be purely
"coincidental". No obvious special joining or following reactions.

See a pair of rufinucha. In low scrub within a Brown terri-
tory. Noisy. Uttering "greeting" (see today's notes on Actapetes).
But obviously alone

Brown

Orange-head and Brown in same tree. Apparently ignoring
one another. Orange-head picking insects off leaves.

Rain almost stopped 8:16 a.m.

See pair of Orange-heads. Nest-building bird and presumed
mate (see today's notes on Myiopsalis). One of them quite noisy. Utter

ing "Zeeet" CN's. Almost certainly also Rattle.

Brown

Get many more glimpses of Browns. Sometimes single birds, sometimes apparently pairs. Rather quiet now. But some twittering songs occasionally. Always apparently alone.

8:55 a.m. Come across a single Atlapetes torquatus sp (probably nigripennis). In thick, low, second-growth scrub, on edge of garden, 50-100 ft below where I have been working previously. The bird looked quite like the Zenaidura birds, except that the white on its breast and belly was a little more conspicuous. Possibly also a more conspicuous black border at the bottom of its white throat. Bird uttered loud "Trit"s. AlCN's. Accelerated when it flew away.

Rain starting hard again 9:05.

9:06. See pair of Cyanoceryle again. Heavy. But alone. I am now convinced that there are only 2 birds of this species here. Mated to one another. Ranging over whole area. Not always together but usually so.

See the same pair of Orange-heads (including the nest building bird) again. I shall call this pair "A". Alone.

Leaving 9:15 a.m. Rain pouring down.

I was very pleased to see that there were no mixed flocks here today, in spite of the atrocious weather.

General

There is one very peculiar feature of all the tanagers, honeycreepers, warblers, and bush-finches in this one peculiar area. Among them all, they have only a very small range of sounds. I.E.: conventional CN's, rattles, formless twitters, a variety of "Zee" type notes, and "Ta zee ta zee ta zee" type song phrases. Almost as if the whole group had been "homogenized." Why ???

Both A & B song birds feeding close together in low scrub. One song bird singing & as "quieting" is 35. Otherwise silent. Feeding by picking insects off leaves. When one bird disappears, other continues feeding. Utters brief R when landing by itself. Then starts to utter a few "zeet" notes. Then utters long R when landing after relatively long flight.

Brown One Brown makes another. Also apparently accompanied by very soft "zhaa zhaa zhaa".

Both Browns and Whitestarts still singing occasionally & so. No overlap.

Brown? See song flight. Possibly by Brown (again couldn't definitely identify bird). I think that this song was accompanied by mechanical sounding "zeewee zeewee..." type song.

7:03. See a single *Basilentornis* moving thru low scrub. Possibly new species. Number XLIX. Silent. Definitely alone.

7:12 High A Orange head carrying n.m. to nest site again. Silent. Then back with more n.m.

Brown Browns still singing occasionally 7:28. Song perhaps a little more apparently formless than earlier in the morning, but basic "zeewee zeewee" structure is still recognizable.

Whitestarts also still singing occasionally. Not overlapping with the Browns.

One Brown makes a flycatching flight.

Brown 7:35. I think that Brown song may be increasing in frequency again. All typical carbuncula up mid-morning peak?

Brown Have now heard several Browns utter several more landing and/or quieting calls. They seem to take the form of more or less abbreviated and/or m-

Brown

n.m. accelerated twitters (SEE DISCUSSION IN NOTES ON MIXED DIGLOSSINI).

A ♀ Orangehead still building 7:45. Apparently not accompanied by ♂.

Now I see that the ♂ is more or less associated with the ♀ feeding in bushes and trees in area where she is collecting n.m. (across the road from the nest-site). Sometimes follows her part-way to the nest when she carries n.m. to it. Both birds largely quiet. Occasional "zeet" notes. ♀ sometimes utters usual "R" or "prring" when returning from carrying n.m. to nest.

Surprisingly enough the ♂ Orangehead does not sing while the ♀ is away. This seems to be one of the most distinctive features of the species.

8:00 a.m. A possible case of the ♂ feeding the ♀. No A Orangeheads continue like this for some time and then go away.

Brown

8:30. Come across an unusually large group of birds in a relatively small area of second growth scrub. 2 *cyanocephala*, 2 *republica*, at least 1 Brown (probably more), at least 1 Orangehead (probably 2 — but not the A's), and a pair of small, largely infous, flycatchers (look like some genus as common Chiriqui form). All quite noisy. Looks like the beginning of a mixed flock. All "mulling about". But then group just dissolves, members scattering in all directions.

9:01 a.m. A pair of Orangeheads fly by. ♀ in front, carrying n.m. One or both utter "zeeee zeeee zeeee" in flight. Then both land in bush. R as "prring".

9:10. See definitely single *cyanocephala* flying from bush to bush.

and tree to tree. Getting songs from each bush and tree. All songs are "Za-wee za-wee za-wee" sometimes brief formless Twitter before first "Za-wee".

Leaving 7:15 a.m.

I am pleased to say that there were absolutely no indications of mixed flocks now or here today either. The nearest thing to an exception was the group described above on p. 78. And this certainly was not an organized group. As far as I could tell, all the birds observed this morning went about their own business without paying any obvious attention to individuals of other species.

October 20, 1963
Below Andean

Working same area again this morning.

Arrive 5:45 a.m. Light cloud in sky but no fog or rain. Still fairly dark.

Bruin Can hear Bruins singing as soon as we arrive. Apparently several birds. Widely overlapping.

DC also going as yesterday. Overlapping Bruins. DC wing bird going back & forth between the same 2 trees as yesterday.

DC gradually gets softer and softer 5:54. Bruin songs continuing. DC stops 6:03. (Could this DC be uttered by White-tail ??? ??? Perhaps more probably by small rufous flycatcher.)

Just Rufous-like White-tail songs heard 6:10. Not overlapping Bruins.

Just A. Only bird shows up 6:10. Probably 7 (one of his wings

62

ing. Possibly partly because B. was seen to have sung less today than yesterday.

2:55. Hear several conversations by B. which seem to be essentially rapid to utter and to have very short or quieting calls.

Notice one thing about these calls (and I think that it was also characteristic of similar calls heard yesterday). They frequently decelerate, just at the very end, so that they may end with a "Zee" — just like the typical R-Zee's of other populations.

7:10. Given what? (My notes up. SEE TODAY'S NOTES ON MIXED DIGLOSSINI)

7:30 See a single Orange head further down road. Definitely not an A. Feeding on insects on leaves in area of low open scrub.

There is a long & noisy boundary dispute between 2 pairs of Cyanoccephala (see notes on Thraupis).

This attracts at least 2 flycatchers (species unknown) and a Cy (probably same individual seen before). They fly up through the bushes toward the Cyanoccephalas, but then disappear. Apparently leave as soon as they discover what all the fuss is about.

NOTE. 8:10. There is an apparently single Orange head here, in one of the trees from which the "DC" comes at dawn. Putting in sun. Presumably then goes to feed. Starts to utter "Zeeet" Notes. After a minute or so I can hear another bird uttering similar "Zeeet" Notes far away. The latter gradually comes closer. Both birds utter "Zeeet"s rather steadily. Then join one another. And I can see that they are both Orange heads. Then both move off more or less together, feeding. At first utter quite a lot more "Zeeet"s, then stop. But they do, now, utter R's as quieting and/or landing calls.

Does this suggest that the "Zeeet"s are PN's ???

Then the 2 birds fly off in slightly different directions. Utters
"Zeeest zeeest zeeest" Notes in flight Almost
"Zeeeeeee zeeeee" Then reform our position with bird R.

Perhaps "Zeeet"s are just intermediate between "pure" PN's
and "pure" Zeeeeeee PN's?

Good heavens! 8:30. Watching pair of rufous in area of
low open scrub with scattered trees. Then see there is a Tree belly perched
in one of the nearby trees. 5 ft above ground. rufous gradually move
off. Tree belly does not follow. Now I see that there are 2 Tree bellies in
the tree. One flies off in the direction in which the rufous went. The
other remains behind. Then Tree appears too (when I'm not looking).
Then I see it is a nearby tree, only a few feet away. Utters occasional PN's.
Then I see that Tree Tree bellies are back. rufous far away by
now. So the Tree belly couldn't have done much following, (if it actu-
ally did any at all!).

9:02. See single Tree belly in Orange head A area (Orange-
heads not around at this time). This Tree belly (ies) must have just
moved into the area. Certainly was not around on previous days.

This bird sings a number of more or less twittering songs. Apparently
quite alone.

Leaving 9:15 a.m.

Again glad to see no mixed flocks today.

The events today have revealed one important aspect of an ar-
ea such as this. Many individuals and species seem to be quite mobile.
They may, occasionally, move up and down the mountain side for consi-
derable distances. This may increase competition between species.

I just say that the whole physical set-up here at 9600-9500 ft, and the fauna, remind me of Hono.

October 27, 1963
Belmont-Underwood

Working the same place this morning as yesterday morning. Arrive 5:39. Sky fairly clear. No fog.

Bum Lots of dawn songs. Birds in full voice. Overlapping one another.

5:42. Something uttering long series of harsh "Tid"s. But not really continuous. Uttered DC.

5:50 DC like yesterday and day before. Starts irregularly. Only long series of notes. Series 2 times as usual. Stops before 5:55. Birds still in full voice 5:56.

There has been an unknown Atlapetes-type song going steadily since 5:45 or earlier. Torquatus? 6:00 a.m. 'Yes!' it is Torquatus. 2 birds. SEE TODAY'S NOTES ON ATLAPETES. Neither of these birds is the Torquatus seen a couple of days ago.

6:10. See 1 or 2 rupincha in area where Torquatus were earlier. Uttering "Tid"s.

rupincha certainly did not sing while the Torquatus were.

6:11 Hear Torquatus songs still continuing. Hear some distance from where rupincha are. ✓

6:12. See huge Orange head hopping about in trees and bushes just where DC used to come from. Utters "Zeeeee zeeeee. zeeeee zeeeee" in flight. Also lots of loud R's. In flight, when landing.

and which peaked some time after landing. No other lots of 3-4
Heads. Also some "Tid" is sometimes "Tid" and "Tid" is also
into R.

Brown There is a Brown around in this area. Brown and Orange
head quote one another.

Now see that there are 2 Orange heads here. Definitely just the
A's. I shall call this pair B.

SEE TODAY'S NOTES ON THLYPOPSIS

Man first Orange. All Whitelut now 6:30. Browns are
silent now.

B Orange heads still in DC area = 3:30. Finding on insects in
usual way.

6:40. See single Cy in area near A Orange heads. There is an
area where it has never been before while I was watching. Is this above
low thick scrub. There is also a pair of Cyanocephalus here. Could the
Cy have followed them?

Cy then disappears

Pair of Cyanocephalus and 1 A Orangehead in same tree. They
fly away. Orange head remains behind. 6:50

Orange head quite alone and quite silent. ♂? Is the ♀ incubating
now??

Brown Incidentally, I forgot to mention... I have frequently seen
Browns in the area where the Cy was seen this morning. But there were
no Browns audible or visible in the neighborhood at the exact time the
Cy was there.

6:58. Both A Orange heads around. Tucking together low-spread
scrub some R's as "quieting"

WS ... feeding ... yesterday ... All ... available ...

Everything quiet 4:33

4:35 Penicillatus ... flying ... that forgot yesterday ...

Penicillatus ... White ... Eucalypts a great deal of the time ...

Brown
Brown

See a Brown make a short flying flight

4:25 Now hear some Brown and White ... g. But the singing birds are not close together

4:35 See what looks, from underneath, like a B.C.T. ... feeding ... in top of one of the trees from which the DC have ...

See a pair of Prinos close together. No reaction. One flies away almost immediately.

4:45 Watching B. Orange heads feeding (in usual way) in thick low scrub close together. Hearing only "Tut"s. Soft lots of TF, some only lateral, but also definite D-V. Very little in the way of WF's.

This species is very Chlorospingus like in general shape. Also quite reminiscent of Psittaculirostris

Brown

See a couple more song flycatchers. Apparently by Browns, although (ag

am) I can = actually identify the birds with the ...
there.

Brown

Leaving 8:27. Going down road, little further.
Down to 9350 ft.

Many what sounds like Brown (B-titter) - 3 or 4.

See a couple of cyanocephala

No red or pink tubular flowers around here. Lots of ...

second growth

Whitethroats, usual species, flycatching and singing energetically
above.

Down to 9175 ft 8:59

None of my species around. Perhaps too late in the day for them
to be active. Also the scrub is becoming second growth and doesn't
look too good.

Leaving 9:10 a.m.

SEE ALSO TODAY'S NOTES ON MIXED DIGLOSSINI

October 28, 1963
Above Mudwan

Walking in Myst area (11,250 ft) this morning. Arrive 5:35
a.m. Still dark. But clear.

Quite a lot of dawn song, altho less than below. Usual
thrush. Rattles which may be by Basileuterus XLI. Possibly also
some Bl & Or Stupi DC.

The presumed Basileuterus XLI R's are, I think, somewhat
softer, on the average, than those of the Orange-heads down below. But

I am sure not more that I can see them apart. It is very common also that the *Chrysomitris* do not utter R's at all. Altogether unlikely. Still I must try to check this point carefully.

All song must be stopped now 5:30. I wish if the song birds began yet for next things here.

A Flycatcher - down if yet

Even R's stopped 5:35. I find some song going and I can hear more *Chrysomitris* at 5:40.

5:35. Can hear what I think is of really another

There was certainly no less song here last. Today there on the previous morning I was told that the birds start to get in reproductive mood when it was no more 5:00. And can they sing now after several days of more or less dry weather???

6:02. Hear quite a lot of what seem to be rufous songs just down hill. One bird going at it quite steadily. Usual form.

6:03. Hear what may be a burst of Whistlart song.

6:08. Single *Forbush*, perched high and up and on small tree utters lots of twitter phrases. Each twitter apparently based on something like "tazozuh tazozuh tazozuh..." Probably related to "Ja-ah" of Quetz birds. But high & thin. Not at all nasal.

6:15. Another Whistlart singing energetically. Also PL & Or Stupe.

Then see a single Black Thrush. All alone.

Then see a single *Forbush* in bush, between singing Whistlart & singing PL & Or Stupe (which are about 15 ft apart). *Forbush* feeding quietly. Apparently ignoring the others. (Unfortunately, I can't see the PL & Or Stupe. It might just possibly be a hummingbird. Very mechanical.)

See!

9:13 *See 2 periphrastica in low scrub. There*

*Then see a hummingbird arriving now a full 1/2 hr. before
time to visit V. - little green and brown bird (with red to spot below eye)*

*See a single Chrysomitris to from common to see 1st
Then several single leucis notes when it comes. See one with no "chak" Then utter "leucis" apparently associated with 2 other birds, but I can't identify the latter but to all attention may be on leaf*

*9:28. There is a hummingbird feeding on pink flowers of a Viola
size. But no sign of a staff*

Leaving 9:35. See out again

*I am rather baffled by this morning's results. As far as I
could tell, there were no real mixed flocks today. Why? Why were
there mixed flocks last week. Has the breeding season started here now
? If so, why was song so slight early this morning? Were the birds
last week reacting to bad weather? If so, it is surprising that they
seemed to sing as much (or more) last week in addition to flocking
together.*

*Looking over Methuen's list, I see that there are less than
half as many montane tanagers and Atlapetes in Bolivia than in
Colombia. So inter-specific gregariousness is apparently not
positively correlated with impoverishment of the (avian) fauna.*

*ADDITION: The common thrush in this lower La Paz garden
area is presumably the same Brown species as near Induaco. Big and a
rather warm brown. Slightly lighter below. Slightly streaked on breast.
Pale orange bill & legs. No eye ring.*

October 29, 1903
above Hudson

Going to work along road between Hudson and George this afternoon. But not (over) in lower right area

First stop just beyond Hudson. Very much growth now abt. 10,750 ft. About 3:15 pm Cloudy No fog

At least 2 Brown around. Feeding on geminal pink flowers. Feeding like birds below Hudson

Also 1 pair C's. One bird uttering one phrase of song. Song. This note is loud and "very" sounding than Brown song. Consistent of bright blue notes. Intense. Brown and C's about 15 ft apart. Then C's fly off to village generally 50-175 ft away.

Large Brown feeding insects in scrub 4 ft above ground. Then feeds on yellow flowers.

One (at least) of the Browns here has light gray supercilious streaks. While not feeding 10 ft from Brown. No reaction between the two. Both silent. Go in different directions.

No songs around now 3:25

Long aerial flight. Involving 3 birds. At least 2 Orangeheads. Then land, utter lots of R's

See a single thrush. Rusty brown. Orange coral legs & belly orange eye ring. Black species? Alone

Something which sounds like A. "torquatus" is singing low in scrub 3:40. Unusually loud & sudden.

See single Brown in area toward which C's flew. Silent. Feeding in usual way. C's not visible or audible at the time

Brown

Then Brown then attacks & chases a hummingbird

CC

Then in my JCC in same area, after Brown leaves. Following the
ch. sub 5 ft above ground. Silent. Probably a pair of 2. 1st is
nearly same pair as seen before. Still all this for 2.

There are several 2s following a 1st bird around. But the 2s
do not follow them.

CC

The local 2s look very gray on breast

There are several 2s following a 1st bird. (Probably white-bellied). Brown
is still being silent. 2s quite close. The 1st bird is moving very
slowly.

See single rufous-bellied in bush where CC is for 10 minutes ago.
Silent. Apparently alone. Apparently not following CC.

CC

Now CC is going up to area where Brown was 10 minutes ago. Still
no sign of the latter.

CC

As far as I can tell, the history of this pair (CC) is absolutely id-
entical with that of one (or a pair) of the local Brown(s). Complete overla-
pping.

Litti

See a single firebelly, uttering PN's alone.

Also in my JCC. Probably same one as before. Alone.

4:05. Come across large mixed flock. Includes 2 sitting, 1 Oriskany
chick, 2 Whitethroats, 2 Redstarters L (yellow-bellied all "Whitethro-
pe"), 1 cyanocephala, 1 Firebelly, and 2 rufous-bellied. Possibly, but
not probably, others. Flock stayed together for 15 minutes, and covered
a distance of at least 1/8 mile, moving along edge of road, while I watch-
ed it. Then it turned down hill, and I lost sight of it. But I could still
hear it in distance. Apparently still keeping together.

Flock as a whole was not very noisy. But the birds did utter

Oct 14, 1961 - 211 - 212 - 213

The flock was all the members of the flock, with the rest of the flock - as below - stayed with the flock all the time after joining it.

The flock moved from all types of the poor-looking ground grow to much better. But there was not much. The sub-birds averages 4-6 ft high. A few small native trees here and there. 10-12 ft tall. I could not tell all members of the flock moved all kinds of sub-birds. But the refugee probably stayed with them, low more often than the other members. And the White starts and the sitting probably came in, high, on to the tops of trees and bushes more frequently than the others.

For the first 10 minutes that I watched the flock, it made no progress in any definite direction. Birds just milled around in an apparently largely haphazard manner. Then the flock started off and moved steadily, and fairly rapidly, in one direction. I don't really know who started this last movement (probably the sitting ???). During the first phase, the milling around, the flock gave the usual (low) impression of being composed of all followers and no leaders.

I was able to see a number of inter-specific reactions within the flock quite clearly and definitely:

- 2 Orange head ♂ →
- 1 sitting ♂ → Orangehead
- 1 Towbelly ♂ →
- 1 Towbelly ♂ → sitting (!)
- 1 Towbelly f → Whitestarts
- 1 refugee f →

Sitting

Sitting

Sitti

Before the Whitestarts appeared to be in the lead. They were making moderate low (for them) zigzagging motions in all directions. I saw no way to a flight. Once a Whistling Warbler (or a similar bird) appeared to initiate a brief temporary movement of the drift of the whole flock. Once the Sittings were definitely in the lead.

Three times the Orangehead made long flights away from the flock. It was never followed on these occasions. I think that this Orangehead was one of the pair seen earlier. Presumably it left the flock to see how its mate, and/or family, were getting along.

It may be significant that it moved back to the flock earlier in the day.

CC
Brown

The flock moved then in part the direction of the Z CC's and one or more Browns. Neither of the latter species appeared or were heard while the flock was nearby.

Brown

U

4:56. See a single superciliosa alone uttering "Tut"s
5:02. Hear Brown singing. These songs are somewhat more lively, more fluctuating, than the most mechanical-sounding early morning songs of Browns down below. This is probably the Brown whose territory overlaps the Z CC territory. CC's not audible or visible at the time the Brown is singing.

Brown

CC

See a Brown feeding in exactly same bush where Z CC's fed. See
but 5:17

The Browns and CC's around here certainly are not singing much this afternoon.

Leaving 5:35

These mixed warbler flocks here are certainly peculiar in some ways. Although there are lots of species that are more or less willing

to follow. Some and normal and long-mottled flocks are apparently only formed around a "nucleus" of Basileuterus warblers. But apparently any one of several species of Basileuterus will "do".

What is even more surprising is that the Basileuterus do not seem to be the leaders of the flocks most of the time. They apparently provide a "stable" core or "camp" for the other species. They may be able to do this primarily because they do not move so fast, and usually or always move by short stops. They also tend to be moderately to very noisy. And some of them are very brightly colored.

B. plum I was most interested in the fact that the local B. plum did not join or accompany the mixed flocks seen this afternoon. Is this due to the fact that the B. plum here, at this relatively low elevation, are not very close to the border of their habitat? Or were B. plum only attracted to mixed flocks containing a relatively larger number of species brighter and/or more conspicuous in other ways than themselves? ?????

October 30, 1963
Above Induana

Going to work in Myit area again this morning. Arrive 5:38. More or less clear. Going to try starting in and around B Myit (4 Carbo) area, rather than A Myit area as usual.

Some dawn song. PL & Or Styr. Basileuterus XLT
General thrush

5:43 Hear what may be same thing as "DC" below Induana. Rather than plaintive "fave" notes. Uttered a little less rapidly than the

usual DC Wilson's Redstart.

5:47 Hear first Rufous in Distinct song. Song
"DC" (Psalterium) then R's. also overlaps "DC" like
R's.

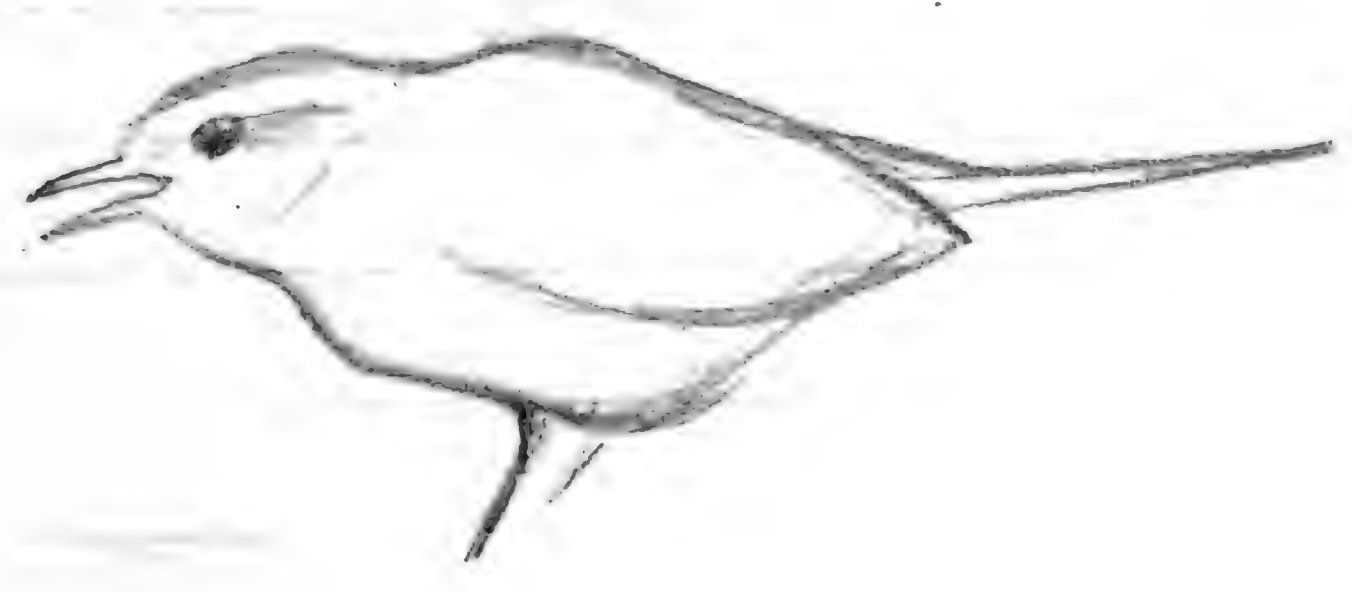
Quite a lot of various kinds of song now. 5:50
All the "DC" coming from one tree or bush. 5:55
5:58. Hear first Grubbelly whistle.

"DC" stops 5:59 or so.

6:03. Hear first refrancha song.

Observed Proculiterus ~~the~~ song now. song R's & L's
song with elaborate "flourishes" (more elaborate than those of the BCBT)
Hear R's stop when I come down to the river. Then I see that there is a pair
of Pl & Or. Stages in area. Apparently close. I think that they must have
been the ones uttering the R's! Now uttering "Tut" & also uttering lines
as "Secret"s. Are these latter Pl's or Grubbelly (Pl's song is like Grubbelly
song notes of BCBT's?).

Going along road come to another single Pl & Or. Stage
uttering usual DC. "Tut. Tut. Tut. Tut. Tut. Tut."



Perched exposed on stump half dead tree 20 ft above matted scrub.
Usually in posture shown above. Tending to look slightly downward
Also from side to side.

6. 10 m. A mile or two above the mouth of the
 river, low, in thick scrub. The river is a few feet
 deep, very shallow. But now all the water is in the
 old channel. The water is a muddy brown. The
dirty white mud is a thick, brown, muddy
 more gray. The water is a muddy brown. The
 appeared in the water. The water is a muddy brown. The
 exact spot. Is this the water of the river?

The white one looks like a young one with a few more
shabby young looking feathers.

Mr. Yates

✓✓✓

over the II's particularly closely.

All the birds fairly quiet, except for the SL's which had our

Went!

On the way to the lake I saw a pair of *Trichoceros* from the road
at the edge of the forest.

They were *Trichoceros* and *Trichoceros* up hill, so that I have
not for

It may be that the morning is not as warm as some
other mornings. I have worked here

Why do *Trichoceros* have been dropped out of the *Trichoceros* line
Have they got into the *Trichoceros* line now?

Everything quiet now 14:30

Alone with 2 *Trichoceros* ? *Trichoceros* no moved flock around.
One *White-tail* moving

Came across a pair of *Bl & D* *Trichoceros* 14:35. In thick but
low-lying. Large bamboo. Apparently alone. Lots of "Aid"
Notes. Lots of slightly lower "Aid" Notes. I don't think that these
latter are *Trichoceros*. Apparently uttered by bird some distance from presumed
mate. Certainly not uttered by bird near me. Also a variety of other calls
Some R's like those heard earlier this morning. And brief series of more rapid
etc "staccato" Notes. Also something like "Wah wah wah wah".

The *Bl & D* *Trichoceros* seems to have a greater preference for low bamboo
than does the local *Paracenturus* etc. Latter prefers brushy bushes &
small trees. But the 2 species do seem to overlap completely.

8:25 a.m. See a single *White-tail* alone. Sings occasionally.

It is getting hot now.

8:34. See pair of *Trichoceros*. Alone.

Back to KM 52 7:05 a.m. Still nothing there but one *White-tail*. Not
even singing now.

Leaving 7:27 a.m.

The absence of the KM 50 flock during my last 2 days of observation here would suggest that such highly organized flocks may range over very large distances.

It is my impression that individual White-throats remain with mixed flocks only, while the flocks remain within their (the White-throats') own territory. This may also be true of all or most of the other species frequently associated with the mixed warbler flocks, but this is difficult to establish, simply because the other species tend to have larger territories and/or birds enter more frequently.

I don't really think that the association of more than 2 Bairdianus XL in one flock is usual. Probably occurs only when 2 pairs of XL's are disputing. But, as in the similar case of Yellow-thighed Gnatcatchers and Sooty-capped Bristle-throats in Panama, the sheer noise and conspicuousness of such disputing tends to increase the coherence of the flock.

My There is no doubt but that Myrtles are avoiding the mixed flocks. This may be simply a reflection of the fact that they are not breeding now, i.e. are not very aggressive. They may not be aggressive enough to want to "shepherd" intruders out of their territories.

October 31, 1963
Near Hudson

Going to work just above Hudson this morning. Same place where ZCC's were seen the day before yesterday.

in birds. Still apparently alone. Utters few more song notes.
Singing call - then feeds himself.

Back & doesn't uttering much more. He is sitting in the
under some low vegetation.

Finally see Brown & 13. He is sitting in the same place. He
usually bird when under cover. -
Sings before yesterday. Apparently alone.

A few more bursts of the "Whistling" song by the bird and
coudell in distance. Bird visible.

6:57. Again see an apparently single bird in the same place. Singing
call. "Sings" song, some more notes.

Pair of Buttercupes appear feeding in the same place. 2-13.
It alone ground. Utters "T-zee" song. Alone

7:02. Hear lots of Brown. Utters "T-zee" song. Alone
Utters "Whistling" song. "coudell" song.

Brown

Single Embellis flying. Utters "T-zee" song. Alone
See single Brown alone.

Again another single Embellis flying. Alone.

Then see pair Embellis in tree. Utters "T-zee" song. Then they are
joined by a 3rd Embellis. Stands a ft away. One or more low notes
more "T-zee" s, plus 2 or 3 more Embellis R's. Then pair flies in one direction
on, single bird in the opposite direction.

These birds were very close to where the Buttercupes were feeding
earlier. Interestingly that they did not follow the latter.

See same pair of Embellis feeding in tree further down road.

Brown Still alone.

See single Brown feeding pink flowers. Alone. Utters a few song plus

see All *Protonotaria*

17. 14. See single *White-throat*. Alone. Silent. Feeding in low
open & open & thick.

Seems as if it is going to move to the west

Brown

Single Brown back feeding over flowers same tree as before. Uttering
lots of very pleasant "Pee" sounds than before. Some "Gee" notes
not of this.

In nearby bushes there is a pair of *Protonotaria* XIV (difficult
identified). Utters lots of R's. Quite like those of *Protonotaria* XII,
but apparently lower pitched. R's overlap phrases of Brown. The
warblers pass them the lot of it, this is where the Brown is feeding. The
two species apparently ignore one another.

It looks as if *Protonotaria* XIV is not important in mixed
flocks. Possibly why it is so dull colored?

The Brown twice attacks a hummingbird.

17:33. See single *White-throat*. Alone

See pair of *Orange-heads* in song. Uttering R's. Alone

Will well. A single *Coereba* flies by. Dull plumage.
Followed, in flight, by a single *Protonotaria* XII !! Then the warbler
turns back, while the latter continues on.

CORRECTION: The *White-throat*-like song which I thought was
uttered by a cowbird-like bird earlier this morning is, in fact, uttered
by a *White-throat*. Humal species.

The single *White-throat* is now singing more frequently. From a
variety of exposed perches. Always alone.

Again come across single *White-throats*. Same place as before.
What has happened to 2 CC's????

Going along road to new area. By RR tunnel. This is a way to Night area. 11,075 ft. Above 8 200

All very quiet

Just sitting in fact. Just as several birds start or double and double in distance. Do not seem to be flying off

For a night & early 7:00 am. Found by white birds. Fly off. 1 reproductive of ————

Leaving 7:11 am

The observations made this morning were rather puzzling, in much the same way as some observations made on previous days in the Night area. There was relatively little in the way of Dawn Chorus early this morning — and then relatively little in the way of mixed flocks later this morning. Throughout this area, at this time, there seems to be a positive correlation between reproductive behavior (s.e.) and inter-specific gregariousness. Which is just what would not be expected. Perhaps the explanation is as follows: A small amount of dawn brings an appreciable number of birds into "reproductive mood". This stimulates song and other vocalizations. These, in turn, attract other birds to the vocalizing individuals. None of the birds here at present is far enough along in the reproductive cycle to have lost its inter-specific gregarious tendencies. Presumably the birds will lose their following and joining tendencies once they are further advanced in the breeding cycle. (The more advanced birds below Hudsoni certainly have lost their inter-specific gregarious tendencies. This would be conclusive evidence — except for the fact that some of the most important species, "nuclear" species, i.e. some of the Prunella utens species, appear to be absent below Hudsoni.)

It is to sum up - a small amount of reproductive mood
 was as numerous as other conspicuous reactions -
 but I think a larger amount of reproductive mood to inhibit gregarious
 behavior.

NOTE: It can be seen from the above account
 there does not seem to have been any rain in the Induani area
 yesterday. Thus many of the birds seem to have "regressed"
 to non-reproductive mood.

Going to take a look at the old channel forest in La Paz this
 afternoon 12, 195 ft. Arrive 4:32 p.m. Beginning

ll
 Carls
 Quite a good area. At least a pair of C's, 1 pair of Cardinals,
 and miscellaneous other species. Including Red-caps, Orange-bills,
 and Thrushes (at least the Black - possibly others). Fauna generally
 quite comparable to that of the garden area of lower La Paz. No
 trace of mixed flocks. SEE ALSO TODAY'S NOTES ON DIGLOSSINI

ADDITION: At 5:04 p.m. today, I saw an Andean Sparrow
 carrying a huge strand of n.m. So something is certainly breeding here.

November 1, 1963
 Above Induani

Going to work in old Thyl area. Arrive 5:31. Scattered cloud
 in sky but no rain or fog.

Warm clouds fairly well developed when we arrive. Thrushes and
 ferns.

Going to go down to area where I saw the white mounted
 Thyl and the Ox-wing Bl & Ox Stipe, the last time I was here.

Then everything seems to quiet down a bit. 5:45
BL & D's flaps is not as in pond for a while 5:46
Hear about 3 BL & D's flaps 5:47
Hear what may be G's flaps 5:48
D's flaps like song
Single D's flaps 5:49
Can hear BL & D's flaps 5:50
a few & heard before. Not all D's flaps 5:51
flourish is elaborate
immense noise

In most of these P's in fact, there are 2 flourishes. D's flaps 5:52
subterminal!

All this P's sound as if the ones being shared by one or two
either that, or the R's of 2 birds are shared in a very rapid & noisy
It is possible that each of the flourishes is being given by a different bird.
Possibly both uttering identical R-1 flourish patterns, but one bird
is starting later than the other. This is, in fact, what the performance
sounds like when I get closer up!! 5:56

Bird(s) apparently stationary during performance. But under
cover

supra singing usual phrases 5:57

Apparently single BL & D's flaps is not DCing from wind exposed
perch when I go back to his area 5:58. But there is a bird of this species,
presumably the same, DCing down left.

6:02. See single Mountain GAT feeding exactly where seen two
days ago. Utters occasional single & double "Sweet" notes quite loud

The last found the Excubitors H.T. R's in electrical
 position with a moving in general direction of the H.T.'s
 R's from the flying apparently separating and I saw each of all 3
 birds.

Now what might be Houttong. Strong intermonosyllabic phrases
Apparently composed of repeated 'So to to yak-zee-zee' is better than
more than usual. Houttong is long around here. Unfortunately, word is way
up hill and inevitable. 1 D

See single BL & Or stripe above & so. This bird is uttering very
unusually loud chir song. SEE TODAY'S NOTES ON BL & OR STRIPES
While we are there near White Mountain kept area.
A second later song by White M. bird feeding or searching about 15
ft away. Also pair of Mountain GNT is quite close to White Mountain.
Feeding there, near, & grass. The White Mountain and the GNT's
join one another (sometimes one species taking the initiative, sometimes
the other) repeatedly, in the course of feeding. But it all looks perfectly
coincidental. And eventually the White Mountain kept disappears.
Before this, however, a pair of *Princlenturus XII*'s appear (presumably
joining) just where the BL & Or stripe was singing. The BL & Or stripe
stops singing immediately. Disappears. The *XII*'s utter lots of typical
R's. 1 *refrunda* j' —→ *Princlenturus XII*. Then a pair of *Arre-
bellus* j' —→ Mountain GNT. Then Mountain GNT j and/or f —→
Arrebellus! Then flock moves off and is lost from view.

Generally cloudy & 45. " No sun But still all very quiet.

Q: 52. Has something that sounds almost like *Salvia* in the
tann. *Hyssopus*?

See a single thread alone.

Heard I forgot to mention I did see of the bird of the
little bird in pair (brown colored) I did see young

7.05. Feb 25: 11:20. In the field. Heard a noisy sound. (C)
Also heard of *Parulicorone* type C. In the field & different areas.
But then C's got close together. Then I stop. I did not see any
was noisy.

Then we merge *Parulicorone*! I heard a noisy sound. I did not see any
notes. Covered from the records, I did see 5. I did not see any
apart.

Parulicorone note. I did not see any. I did not see any.

Palatins of fog around now 7.17.

7.20. Consistent mixed flock. Includes at least 6 BL & Or Stipes. (D W/H)
per. Probably more. Also 1 bird that looks like a "Red" version of "Typi-
cal BL & Or Stipes. Darkly crown & cheeks (no dark spot). In this a juve-
nal BL & Or Stipes?? Or is it "Parulicorone" XLIX.?? Or are the
same? Also 1 Whitestart, 1 *refumica*, and a pair of *Canaries* II. Also
a pair of *Ochthoas* - but their association with the group seemed to be
purely coincidental. BL & Or Stipes uttered lots of hoarse "fret" notes.
The others were quiet or silent. The group as a whole was in thick
bamboo scrub, interspersed with scattered trees. All members of the
group moved both bamboo & trees. BL & Or Stipes showed usual prefer-
ence for bamboo. Once a II was in lead. Several times a BL & Or Stipes
was in lead. The II's and the BL & Or Stipes eventually moved off to-
gether. Probably also the juvenile BL & Or or "Parulicorone" XLIX.
The Whitestart, *refumica*, and *Ochthoas* remained behind. I did
not see them together.

7 =

... .. 3 Black
... .. of
... ..

... ..

... .. 11,300 ft

8:33
... ..
... ..
... .. 11,410 ft

Go to

8:55 11,500 ft
2 Black
... ..
... ..

A tanager II was in the lead among the road. Followed
by a

A flock going straight up hill thru thick, mixed (bamboo &
everything else) scrub of
Buds 2-10 ft above ground
Made a whole noise. N's,
This was at least 1 KM from the 50 KM
and the mixed flock is the 50 KM one

... ..

Thinking things over - it seems quite possible that the mixed
flock seen at 11,500 ft was the KM 50 flock

If so, it seems likely that such species as the tanager II, the
... .. and the Black
keep together constantly for a very long period of time

As far as my observations go, the tanager II and the Black

August

SEE BELOW

Little
Ox

Parula flavipennis melanocephala

• h - check on as much "obligate" numbers of mixed flocks & their sitting.

Working in the bot area & garden this afternoon for new birds. Afternoon 5:20. The new gray brown above, lighter (quite light) below. Dark bill & eyes. Apparently dull neutral legs. Above.

gal POSSIBLE CORRECTION The birds that I thought were Blue & Chestnut Coucalles in the mixed flocks this morning had dark (presumably gray) skins - I think. This does not accord with the my description of the Blue & Chestnut seen earlier. The birds seen today a different species.

November 2, 1963
Abner J. J. J.

Just going to work in Z CC area. Arrived 3:02 p.m.
Mild cloud & sun

Single cyanocapala flying. With PN's above.
Then see pair of White-cats. Possibly associated with some other birds.

Brown
Can hear A. f. singing in background.
3:16. See B. singing. Very rattle like twitter. Quite like that of the birds below Hudson. Perched exposed 6 ft above ground in area of varied scrub. Near or in Z CC area. No C's visible or audible.
3:33. Finally see Z CC's. Flying up hill in area of very sparse second growth. I have seen a Brown in this area on previous days, but there is none around audible or visible at the present time. C's apparently silent. When first seen, they were not far from a pair of D'Orbigny's Tui-tu.

is the same as the one I saw before. It is one direction and the CC is in the other.

U. The CC is a small brownish bird. It might be a bit like a sparrow and it is a little bit like a sparrow.

See 1 bird in the scrub. It is a sparrow. Call it III. Color pattern is very distinctive! Medium blue-gray (pale blue) all over, except under tail, which is rufous. White on chin - n. of bill. In scrub where I have seen both D'Orbigny's and CC's. But none around at the moment. 3:45

D'Orbigny's Finch are also common in the scrub.

U. It is possible that the birds with which the CC's were associated were III's, not D'Orbigny's.

4:07. See a single Orange-billed Saltator here. Alone. See a single Whitestart. Alone.

Going on to Myrt area. Arrive 4:17. Clouds low. Almost on us. Everything very quiet.

See a dark Dryobates flying when I have never seen one before. Unfortunately can't identify it.

4:30. Mixed flock. Dense scrub & low bar. At least 2 Prunella over XII, and 1 other larger darker bird. XII's are uttering CN's and soft short R's.

See what may be same flock further down road. At least 1 XII and 1 darker bird.

Nothing at KM 50 4:45

Heard Whitestart singing in distance.

5:12 p.m. See a pair of Whitestarts followed by a pair of Alta peter republica. The latter uttering CN's. Also 1 soft R as "greeting".

They certainly do not now

5 2a. The group 3 Blue & 2 Purple & 1 Green
many, about 2, 10000 birds - 100

3 33. Certainly all of them are gone, I think

II, and at least 10000. The 10000 are
refugee in the end. Also considerable numbers of
Old birds about.

Leaving 5, 10000

A few general remarks



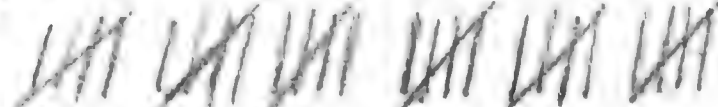
I presume that most of the birds above the water that are not
breeding now will start to do so in the near or less near future (pro-
bably when the rainy season begins in earnest). Even though some of
the species (e.g. the Scrubwren) probably were more vocal a couple of
weeks ago than they are now, they cannot be coming out of a breed-
ing season rather than going into one. There are no juveniles around.

I think I understand why Butorampus is not more numerous.
Birds of this species frequently make long flights between trees, and this
probably always tends to discourage following.

ADDITION: I have never heard any D'Almeida's Finches,
in La Paz or near Tindave, sing. They obviously are not breeding
now.

Northern Bolivia 08, 10, 15, 16, 18, 20, 21, 22, 24, 27, 30, 31, Nov 1, 2
 above Unduave 1963

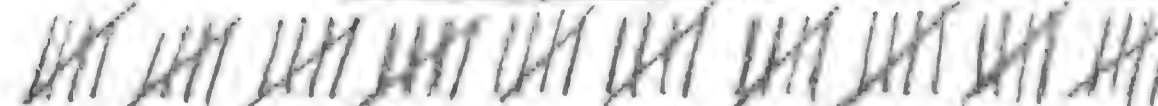



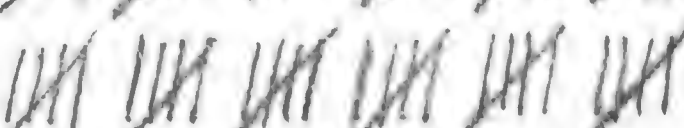
No. Inds. seen alone

(50) 
 (100) 


(130)

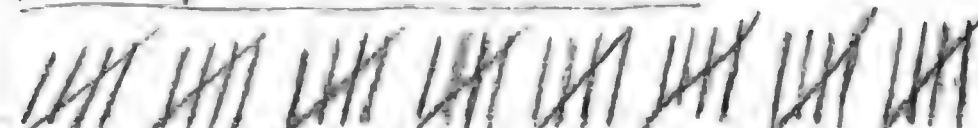
(360)

No. Inds. in flocks

(50) 
 (100) 
 (150) 
 (200) 


(230)

No. flocks seen

 (40)

No. H. O. flocks seen

 (20)

Largest no. Inds. 1 flock

15

Largest no. spp. 1 flock

No. spp. per flock

2 2 7 2

4 2 4

4 (X) 7

5 8 2

2 3 2

3 3 3

3 6 4

3 7 5

(7) 7 2 2

(10) 2 3 6

(X) 2 2

(X) (X) 2

2 2 2

Northern Bolivia Oct 17 23, 24, 25, 26

Below Indavani - 1963

No. Inds. Seen Alone

(50) IIII IIII IIII IIII IIII IIII IIII IIII
(100) IIII IIII IIII IIII IIII IIII IIII IIII
IIII IIII IIII IIII

(119)

119
34
153

No. Inds. in Flocks

IIII IIII IIII IIII IIII IIII IIII II

(37)

No. Flocks Seen

IIII IIII

No. H.O. Flocks Seen

1

Largest no. Inds. 1 Flock

2

Largest no. spp. 1 Flock

No. spp. per Flock

3

2

2

2

2

2

5

2

3

(10) 2

(25)

Monttana Bolivia

Phase Hadwari 103

Hours Spent

Oct. 14	3 hrs 00 min
Oct. 15	3 hrs 45 min
Oct. 16	3 hrs 45 min
Oct. 18	3 hrs 00 min
Oct. 20	2 hrs 00 min
Oct. 21	4 hrs 00 min
Oct. 22	3 hrs 45 min
Oct. 28	3 hrs 45 min
Oct. 29	2 hrs 15 min
Oct. 30	3 hrs 45 min
Oct. 31	3 hrs 15 min
Nov. 1	3 hrs 30 min
Nov. 2	2 hrs 45 min

42 hrs 30 min

Northern Bolivia

Belon - Mendoza - 1963

Hours Spent

Oct 19	2 hrs 30 min
Oct 23	3 hrs 15 min
Oct 24	3 hrs 30 min
Oct 25	3 hrs 15 min
Oct 26	3 hrs 30 min
Oct 27	3 hrs 15 min

19 hrs 45 min

Paulesternus of luteovirens type. 10:50. They are flying along
Now, 11:30. They seem to have been associated with several other
birds. Other species I think. They are not to be seen. In a group.

I think the birds uttering R's are Paulesternus - type. R's are
loud, sometimes low pitched.

During, birds seem to be R. nigrocapitatus. I am off south along
again.

11:55. See a group of birds. I think they are luteovirens
too. refractus flies off. I am off. I am off. I am off.
cotinga, usual species, in some tree against the other birds and some are behind.
Some small chestnut breasted bird joins the Paulesternus, but
then flies on again immediately.

These Paulesternus - types seem to be even noisier now than during
my last trip.

See a single luteovirens and alone. Silent. In low bush.
Then see a pair of refractus alone. Flying there near 5-20 ft
above ground.

Comes across group of at least 3 Paulesternus. Possibly same birds as
seen before. One of them, at least, is definitely nigrocapitatus. Associated with
them is one refractus.

Flight near 17:10.

Comes across B. nigrocapitatus group again. refractus seems to be
in group; but the warblers are certainly being followed by a pair of fermar
ids. A rather small species with a conspicuous white cap.

At least 2 of the warblers in this group are definitely nigrocapitatus.
Presumably all are (if the 3rd individual is still with them - which I am
not sure). Still uttering lots of R's. Also something is uttering lots of hoars.

12. Just at lunch. Further. Possible begging?

Just at lunch. Further. Possible begging?

Continued

Everything still quiet. 11:30 am

It is still the morning!

2:30 pm. In a small mixed flock. One pair of whistlers

5 (got a good view of them. Definitely more of the last year), at least one B. nigrocristatus, at least one O. form. neglectus. Whistlers flitting about in usual manner, usually from 15-20 ft in trees. Warbler usually lower, 5-15 ft above ground. But sometimes the whistlers come down, and sometimes the warbler goes higher. At least once, whistlers fly off across the road, and the warbler does not follow.

Both the whistlers and the warbler were very vocal. Warbler uttering R's, whistlers usual song. And they tended to synchronize their vocalizations! One stimulated the other. Effect apparently reciprocal. Sometimes warbler started first, sometimes the whistler (s). And both tended to stimulate distant whistlers and/or B. nigrocristatus to vocalize (in the same ways). Thus, everything usually was either quiet or noisy as hell.

Then the fog and rain comes in. Rain heavy. Turning into hail! Getting a little better 9:25 am

It seems quite possible that B. nigrocristatus is passive nuclear here now.

As far as I could tell this morning, the frequency of mixed flocks here may be much the same as during my previous visit.

Leaving 9:45 am. as rain settles down to heavy steady drizzle.

130
!! 72
Thinking of going to ... at 3:50 ...

Carbo

See a single ...
Then a single ...
See a single ...
See a single ...
See a single ...

in appearance 4:35 pm

See another ...
but fairly dark sooty brownish. Orange bill & legs. Then yellow eye ring
A few moments later see Carbo again same bridge. Again silent and alone

5:12 pm See another single House Wren alone

See a single ... alone

It is certainly ... that this is not the breeding season here now
Also that there are no organized mixed flocks here now

Leaving 5:52 pm

February 27, 1964
Mr. Anderson

Couldn't get by the barrier at Uduavi. So waiting on the La Paz side. Pouring rain. Still quite dark at 6:30 am.

Nothing going on to Myit area. Arrive 7:16 am (by my watch, which is probably a little fast). Still pouring rain.

Everything very quiet

See a pair of ruficauda. Alone. Silent. At foot of thick low bank

in scrub. Saw within 20 ft of at least one "White-crowned Sparrow" (same species seen yesterday) without recognition by either species. Then the f. flew across road into the low arborescent scrub. A few moments later the sp. was seen again in same place. All

11 saw several flocks. 1 Whitestart, 1 Mountain GNT, 2 Forkbellies. One Mountain GNT f. ———, Whitestart. One Whitestart f. ———> Mountain GNT. One Forkbelly f. ———> Group of 4 arborescent scrub by road. Quite common in scrub. Then Forkbelly flew across road. Mountain GNT f. ———> Forkbelly. Then another Mountain GNT appears, joins first. Then one Forkbelly f. ———> Mountain GNT's. The other Forkbelly left somewhat apart. A few more of same (the local equivalent of "Ja. and" phrases). Both Forkbellies & Mountain GNT's now in trees, 20 ft above ground. Whitestart seems to have been left behind.

None of them, don't seem to be any regular leaders in this flock! Rain stopping 8:00 a.m.

Same flock. Both Forkbellies & Mountain GNT's now hopping about low scrub & trees without making much forward progress. Mostly out of sight.

See single through above. Brownish rosy. Orange bell & legs. No bright eye ring.

Then Whitestart singing in distance. Also B. nigrocristatus R's. Come across another mixed flock. At least three Black & Orange Stupes, 1 Goldcap, 1 Whitestart, 2 B. nigrocristatus. At first in trees in middle of patch bamboo scrub. B. nigrocristatus f. ———>. Then Goldcap flies across road into bamboo scrub. Black & Orange Stupe f. ———> Goldcap. Whitestart f. ———>. B. nigrocristatus do not follow. Go off in different

Myst

→ 'Myst' Colours & Orange stripes f →. Lots of noise in flock. But not by 'Myst' As are "Squalls" Notes (FB?), and peculiar "Bar-wump" Notes (by *B. rugicastris*?) most common. When 'Myst' moves, it flaps all around us. Low. Noises excited. But quite silent. This bird has light pinkish-brown lower mandible. Pale buffy white under tail stripes. Juvenile? (Quite Peet-like in general proportions.)

of birds moves quite rapidly & purposefully uphill
few others presumably still in area did not seem to be attracted to this flock

10.18. Flock silent & almost stationary. A *Leptocarpus* Alow. Silent. Leaving 10.25

As far as I can tell, the mixed flocks here now are much the same, in most respects, to the mixed flocks seen here earlier. The same "fluctuating" or "variable" leadership. Perhaps relatively slightly more common now? Certainly moving more rapidly and steadily now. Does this mean that food is relatively scarce now, i.e. that the birds have to travel farther or now, to get the same amount of food that they could get earlier while stationary??

NOTE. I was told, upon my arrival here, that the rains had stopped, at least in La Paz, 4 or 5 days before my arrival. I.E. rainy season is drawing toward an end.

February 28, 1964
Mr. Underwood

Arrive 'Myst' area 5:55 a.m. Still fairly dark. Looks as if the dawn

is, at least, well to find it. Going to start up path to Allutunara as soon as I get a little lighter

Initially almost nothing in the way of song. Then some White-throats out at 8:30. Then again & again

Both singing the same phrase after phrase

Then suddenly some (several last found) 6:30

Then see no more suddenly alone. Found by white-throats

Many and volume of song. pattern now is several White-throats singing. Also hear what sound like Blue Grosbeaks (but not flower blue) Also hear what sounds like Doves. Also what might be Kinglet in distance. If this is Kinglet, its song is relatively slow & a little more for a Capemanager. Not overlapping with anything.

I think this must be Kinglet. No triplets as in White-throat song. Then see no more. 12:00. NOTE: ON MIXED DIGLOSSINI.

Things generally quiet now 1:15

7:30. See a single White-throat 11,000 ft

NOTE: I don't know why I didn't see any mixed flocks this morning. Possibly because of the sun and the heat. Possibly because such flocks are always rare along the upper part of the path to Allutunara ????

February 27, 1964
Mr. Hudson

Going to work along road to Allutunara again this morning. Arrive at Kinglet area 8:50 am. Cloudy, some fog. But no rain (yet)

SEE T-2012 NOTES ON MIXED LINGLOSSINI (especially for description of a very large mixed flock at the upper end of the path to Cebutocara)

Observations of the large flock today confirmed my previous impression. Large flocks here seem to be partly compound, including many recognizable sub-groups. The large brightly colored tanager sub-group (e.g. *T. ruber*, *Thraupis* GMT's, etc.) seems to be the most distinct. Quetzals within the warblers, *Cambal*, *Hemiprocne*, *Sturnella* sub-groups are less easy to identify or categorize. Within this sub-group, it would seem that the roles of several species (*warblers* and *Hemiprocne*) are partly "interchangeable". Thus, for instance, this morning the former and *LXX* was first associated with *B. nigriventris* and then with *Black-chicks*. Similarly the latter was first associated with *Black-chicks* and then disappeared from my view — perhaps following *B. nigriventris*.

The large flock this morning certainly was not very purposeful. Going to work in garden area lower La Paz. Arrive 4:22 pm.

See single *C. n. g.* bell alone. Again. Again.

Garden has been rather changed. Various things have been planted.

See a pair of *P. g.* 4:13. Alone.

Catch one glimpse of what is probably *Carbo* in A hedge area. Select and alone.

See single thrush alone. Looks like *Brownish* (dull, moderately dark).

Orange bell & legs, then yellow-eye wing.

4:26. Hear what may be *Carbo* songs in distance. See a single *Thraupis* alone.

See another *P. gage* alone. Then see another *Th. carbo* (probably same species as before) alone.

Where are the *bonariensis*?

Going down toward stream 5:00 pm

See another single Orange-bell alone. Then another *Th. carbo* (same species) alone. This individual looked quite large brown.

See another Orange-bell alone.

Nothing more. Coming back up hill to A *Carbo* area 5:30 pm

Here what are probably CC or *Carbo* songs

Carbo Two *D. flosas* flying. Apparently *Carbo*s. Apparently hostile chase. But silent. In B *Carbo* area 5:48 pm

Carbo Then one of the *Carbo*s flies into scrub. Lands on a small shrubby yellow flower (like fringed sweet-peas). Silent. The other *Carbo* also flies into same bush. Lands about 4 ft away. No "greeting" or "touching" of any sort. Then second *Carbo* also falls on yellow flowers. Then flies along into conifer. First *Carbo* follows (pursued?). Still both birds silent. After this they shuttle back and forth between scrub & conifer. Always silent. Once one bird supplants the other.

Carbo As far as I can tell, in this light, both birds are pure *Carbo*. One, at least, may have trace of light supercilious. Is this typical of *Carbo*???

None of the birds here seem to be breeding now. No song of any kind by anything — except the very few diglossine phrases heard earlier.

I wonder why *Atlapetes* spp. are so rare in the southern Andes? Is it merely that they originated in the north and haven't had time to spread yet?

March 1, 1964
Mr. Anderson

Going to work along path to Callitriche again this morning, under
this promising Callitriche it is a very light rain. Still very dark
and foggy. The fog is very thick. The fog is very thick. The fog is very thick.

7:30 am Near B. superciliosus R. The warbler where flock was seen
yesterday. (and some new birds heard today (see))

Agony in at same time - of course

Then see the B. superciliosus. A pair. Moving along edge thick scrub
10-20 ft above ground. Apparently feeding on insects, probing at leaves, probing
into twigs, etc. After occasional little flourishes but not noisy. Also a few
"CN"s. This pair is being followed by a pair of Blue & Chestnut Cowbird type.
Moving at same levels, feeding in exactly same way. Apparently silent. I saw
these Blue & Chestnuts go and follow the superciliosus at last 17:45
times in a couple of minutes.

Then Blue & Chestnuts seem to be the real cowbirds. Definitely buffy on
cheek. But I think that they are also the "cowbird-flycatcher" LXX 11
same shape and size. And the blue gray on the cheeks of at least one of these
individuals comes so far down that the buffy of the cheek is hidden unless one
sees the bird from in front or from straight sideways. Also both birds seem to
have very faint light mountain stripes just above the lower border of the gray
cheeks.

Then I go on a little ways and find that there is a group of at least 4
juv. LXX's and 1 Ocellular (LXXI) ahead of the warbler cowbird of

over. Leading edge of thick mist in the air. 1000
feet. Flycatcher sometimes comes to ground. Flycatcher
flitting up to height of 10 ft. Both species
seen some come down like crows!

During the rain, and while I was trying to write this, I saw at the
margin of the forest the furnished flycatcher group. The whole group came down
to the furnished level. Apparently feeding some place, possibly on some
leaves. I must have seen at least a case of an individual warbler joining an
individual furnished, and at least a case of an individual furnished joining
an individual warbler. All fairly close to the margin, the latter is
flitting about, flycatching, on the substrate (usually to the rear) of the warbler
or furnished group. Also about. (Playing much the same role as whistler
to warbler flocks)

This *Orchocercus* is the only one of the group of the genus *Orchocercus* which feeds
in this way. (None of course, nor any of the others)

When the *microcrastus* joined the furnished, they apparently left the
combells behind. I can hear several fairly long, soft, rapid, C-like
trillers coming from area where combells must be. Presumably uttered by
one or both of them.

After some minutes, the *microcrastus* - furnished group (and probably
by the *Orchocercus*) move back in the direction of the combells. Then I see the wa-
rblers and the combells feeding close together. Frequently only a few inches
apart. No sign of hostility. Both species silent.

When the fog comes in thick and it is impossible to work for a while.
During the period in which I was watching this flock, I could hear
both *Trichocercus* and *Myiops*, occasionally, not too far away. Neither spe-
cies showed any inclination to join the flock.

They are 3 sitting in a row on a branch.

Then a group of 4 flies up to the top of the branch.

They are 4 flying in a group.

They are 4 flying in a group.

They are 4 flying in a group.

They are 4 flying in a group.

They are 4 flying in a group.

They are 4 flying in a group.

They are 4 flying in a group.

They are 4 flying in a group.

They are 4 flying in a group.

They are 4 flying in a group.

They are 4 flying in a group.

They are 4 flying in a group.

They are 4 flying in a group.

They are 4 flying in a group.

They are 4 flying in a group.

They are 4 flying in a group.

They are 4 flying in a group.

They are 4 flying in a group.

They are 4 flying in a group.

They are 4 flying in a group.

They are 4 flying in a group.

They are 4 flying in a group.

They are 4 flying in a group.

They are 4 flying in a group.

They are 4 flying in a group.

They are 4 flying in a group.

with
B+C

data
B+C
Myrt

single Towhees definitely joined the group. I also manage to identify (partly or wholly) some other members of the group. There is at least one other Junco (quite large) in addition to 228. Also one or more flycatchers of other species (including the strikingly white-bearded form seen with mixed flocks in the northern Andes). Also there is both a pair of Littles and a pair of Blue + Chestnut Cornbills - types. This time, I see that one of the latter has a buff chin (very narrow). Definitely the same species seen with the other mixed earlier this morning. It is also possible that one Myrt may have been associated with the flock, but fly.

The bird that may have been a Myrt was certainly possibly a follower. Also out everything else seemed to be a leader occasionally. Leadership changed hands again & again & again. Birds constantly leapfrogging over one another. It is possible that the Towhee and the Black-checks were in the lead more frequently than all or most of the others.

B+C

The group as a whole was quiet. Some "coo"s. Some Cornbill Twitter (almost certainly by the Blue + Chestnut's). Some apparent disputes between Black-checks, accompanied by some noise which I didn't quite catch.

All or almost all the species ranged thru all levels and types of vegetation on 2-25 ft above ground. I couldn't detect any particular "altitude" preference of any particular species.

data
B+C

Both the Littles and the Blue + Chestnut Cornbills tended to stick quite close to Black-checks. Usually or always following the Black-checks. The Little and Blue + Chestnut Cornbills were often closely associated with one another, but I think that such associations were due to the similar reactions of both Cornbills to Black-checks - nothing more. The Little and Blue + Chestnuts did not appear to be directly attracted to one another.

General

Incidentally, I am becoming more and more convinced that the pattern blue or blue gray above - chestnut or buffy below is purely a "follower's uniform." The species that go with it do not seem to react to one another in any very strong or organized manner, but they all probably play similar roles, request action much or rather abundant, in mixed flocks including other species of different patterns and colors.

It was particularly interesting that the pair of B. nigrocrinitatus did not join the mixed flock. Before the flock must have passed within 50 ft of them. After the flock disappeared from view, I found the pair of nigrocrinitatus again exactly where I saw them before.

Is nigrocrinitatus less strongly attracted to groups composed of Black ducks, furrunculus, blue or gray and chestnut or buffy species, e.g. the common groups at highest altitudes here, than to some of the species common at slightly lower altitudes, e.g. Bl & Or. Stipes, etc.? Or is it less attracted to rapidly moving groups than to slower groups? Or is it less strongly attracted to large groups than to small groups? Or was the absence of joining reactions by this particular pair of nigrocrinitatus pure "coincidence"?

The amount of vocalizations in this region now would suggest that the only species likely to be breeding at the present time are Merg, nigrocrinitatus, and (possibly) the White-tail.

I was interested to see that there were more, and/or more elaborate or highly integrated flocks, here today than yesterday - and that the weather here was worse than yesterday. There does seem to be a positive correlation, here, between bad weather and mixed flock formation.

Incidentally - for comparative purposes - I might note that this area does not appear to be more humid than the Mackinac Island area - less humid if anything. And like the Mackinac Island area it is a mixture.

of apparently virgin scrub, showing second growth scrub, and $\frac{1}{2}$ acres

NOTE: The reason that we find a few more frequently in bad weather than in good may be simply that birds remain active longer (later in the morning) during bad weather and thus have more time, and chances, to come together.

March 2, 1898

The Price

Going to work in garden area lower La Vig this morning. Arrive 3.15
a.m. Still quite dark.

SEE TODAY'S NOTES ON MIXED DIGLOSSINI

COMMENT — about area above Indunee and path to Allentona
ra. I don't think that the average density of honeycreepers, warblers,
tanagers, and bush-finches here is any greater than in the Quita region.
I.E. the frequency of mixed flocks here is probably not due to greater density
of population.

About the garden area of Lower La Paz. The situation with regard to mixed flocks here now seems to be much the same as during my last visit. Thrushes, bonariensis, gairi, Orange-bills, etc., may all occur quite close together, especially when feeding in the same places, but all these associations seem to be purely casual. No signs of special inter-specific preferences. No signs of organized flocks, stereotyped and frequent following and/or joining responses — among the species with which I am concerned. Very few signs of ultra-specific gregariousness either. Probably only a few family parties. Again, goldfinches may be an exception to all these generalizations.

I am rather pleased about this. It all goes to support the hypothesis
is that all or most Audubon species show much the same amount of gray
around in both the breeding and non breeding seasons.

March 2, 1864
Mr. Brewster

Going to work below Hudson this morning. Same place where
I watched most of the Browns and Orange heads, and saw lots and saw a cyanocephalus copulation, during my last visit.

Clouds 2-3000. Still no birds. Heavy cloud some patches of fog
than just bird sounds. Till about 6:15 am. Then
about 6:30 I saw Orange heads? Little or nothing in the way of territorial
disputes. Then hear what may be rapid, even, twittering by Brown. Phrases after
phrases with very brief intervening pauses.

Then some I presume? Browns singing. Whole overlaps between songs of
different individuals. Then shut up.

Brown shows a general very weak 6:28 am.
Then hear Whittart. Nothing else singing at same time.
See several single thrushes alone.

A little more Whittart & Brown song. Not overlapping.
Can hear a virgatus same place as last time.

6:35. See mixed flock. 3 or 4 birds. In small trees round growth scrub
& 12 ft above ground. Group includes at least 1 Orange head, and 1 of what app
ears to be P.B.T. (grayish brown cap?, white near eye, yellow on breast). Quite
only a few cat's. Orange head probably f ———— > once.
See some Whittart singing alone.

Threat flock of Orange-bellied ...
Group includes at least a Orange-bellied ...
Action to the presumed BCBT. Still ...
near level. Then disappears from view.

It is clearing up now & so ...

See pair of Thrushes alone. Moderate song. ...
no eye ring or (more probable?) ...
be a species of Thrushes here. One moderate song ...
than yellow eye ring. One larger, quite gray ...
let, no eye ring. These just seen a good ...

Brown

6:53. See single Brown alone (short)

CORRECTION. At least one of the large gray ...
than yellow eye ring.

NOTE: The presumed BCBT seen this morning was ...
thought I saw a BCBT last year.

See single Gambel's alone. In small trees ...
b-man form. Quite vocal. Uttering "song" phrases. ...
too, I think.

Quite a lot of Whitestart song still. From ...
shut up long ago!

See a single Whitestart alone. Also high & prolonged aerial ...
entirely involving 2 Whitestarts. I really think that this species must be in breeding
condition here now!

Whitestarts singing all over the place!

7:13. See pair (possibly 3) BCBT's in moderately tall second growth ...
b. Definitely BCBT's, new subspecies (LXXII). Uttering lots of "sh" notes some

The same when the road to the house was at least 1/4 of a mile
away from where the road crossed the river.

NOTE - In writing, my letter to Rev. Mr. Webb empties. Instead of the one in fact. The letter is now in my hand. I cannot. It seems to go. But will it be all right? I do not mean more that my letter is in my hand, now.

Brady

Everything very dull now & so a w. fog starting to come in
from W. at about 11.15. Night.

802. *Leucis Wimmeriana*

8. 16. The single quadrifida alone. In second-growth scrub, edge of open
wood.

See water (?) next flock, in same place where Cyanocitta - little flock seen earlier. Edg. where dense grasses & shrubs. Low second growth scrub. Flock (new) includes pair of Cyanocitta (possibly same pair as in flock earlier), 2 or 3 BBT's (almost certainly same birds seen alone earlier).

Beet's remain quite low, 6-10 ft above ground. Cyanocypselus sometimes at this level, sometimes higher, up to 20 ft. Cyanocypselus eventually fly away. Beet's remain behind for a minute or so, then drift off hopping from bush to bush, in the same general direction in which the Cyanocypselus fly.

8:10. See another mixed flock. In a mixed flock of 10-15 birds, all or most of which are Orangebeaks. Then a single White-tail. Then a single A. cyanecephala. Then a single A. cyanecephala. All quiet. Only a few birds.

White-tail still singing 8:45

Then a single White-tail alone. Singing from small to very great. Conclusion: It's a pair of White-tails.

Something around here is uttering a lot of "tra-ance" notes. Quite distinctive. But possibly A. cyanecephala. I see A. cyanecephala alone, in low-wood growth scrub. Utters out "tra-ance tra-ance tra-ance" phrases.

General

One Hirundo & Diglossa particularly closely related to one another. The plumage colors of immature Diglossa would support this hypothesis.

9:15. See a single Orangebeak in area where mixed Orangebeak - BBT flock was seen earlier this morning. Apparently alone.

Good hearing's. See another through alone. Green blue black. Orange bill and legs. (Probably) orange eye ring.

See a pair of White-tails alone. Then a single White-tail alone.

Then realizing that this latter White-tail is part of a mixed flock. In small tree in area of fairly high but thin + obviously second growth scrub. A A. cyanecephala in same tree about 10 ft away. A group of 1 B. luteoviridis (quite small, must be Bauhiniorus not Hemiprocne) and 2 Orangebeaks feeding in low shrubbery on other side of road. (The B. luteoviridis and Orangebeaks appear to be about the same size - if anything Orangebeak is larger). These 4 birds fly across road to join the White-tails and A. cyanecephala. B. luteoviridis first

the 5-yr group. The whole group. It is almost in record group the next group to follow. Some of the 5-yr group. White birds from the group, busy, and then a lot of fighting and chasing among them. Then I see that there is a White bird in the group. Cyanophala → White bird. The White bird is Cyanophala and to stay low in rank. The White birds are the Cyanophala but to stay high. As far as I can tell, the White birds - Cyanophala sub-group is usually in the lead. There is also one white-headed Pipit with group. One Cyanophala chase another, finally driving the latter away from the group. The White bird then returns to the flock.

See same group a little further on a few minutes later. This is less as before. But the White bird is the Cyanophala with group. Ah! CORRECTION I am fairly certain that the bird I identified as B. luteoviridis is really juvencal Orangehead. Definitely has olive crown, but there is a tinge of orange on the front part of the yellow stripe above the eye. Also on front of cheek. (Thus the original Orangehead sub-group probably consisted of 1 adult ♂, 1 adult ♀, their juvenile offspring, and 1 adult "Stranger".) Once the Orangeheads were definitely leading the group. Once the Cyanophalas were definitely leading the group. And once the White birds were definitely leading the group.

Leaving 7:52 a.m.

NOTE: According to my altimeter now, the altitude of the P. Thuyt area above Hualapai is 10,550 ft.

Below part in Hualapai is 10,050 ft according to my altimeter now.

COMMENT: There certainly seem to be quite a lot of mixed flocks below Hualapai now. Quite definite and moderately well organized. But still much smaller and less well-organized than the mixed flocks at Hualapai and above.

I am rather surprised to find so many mixed flocks here now. Or, rather, to find such a difference between the behavior of the birds now and the behavior of the same birds during my last visit. Why are there seasonal differences in gregariousness in some areas and not in others? Does it have anything to do with T° differences between seasons? ??

March 4, 1964
Mr. Underwood

Going to work in same area, below Underwood, again this morning.
Arrive 6:25 a.m., after being delayed by fog on the road. Just about
light when we arrive. Overcast, but weather doesn't look too bad on the whole.
Some Dawn Chloes. Whitestart. BCBT R's? A. torquatus?
7:00 a.m. See a single Gray-breasted Thrush alone. Definitely has that yellow
eye ring.
See a single Whitestart alone.
See a pair of BCBT's in low scrub alone. Same place where pair seen yesterday.
Five minutes later see same birds further on. Still alone.
Everything very quiet 7:15 a.m.
See pair of Gray-breasted Thrushes alone (they look quite light brownish on
back).
7:33 See a single A. rufumida, definitely alone, flying from tree to tree
in area scattered second-growth. Uttering "Tuk" Notes.
See a single Oriole alone. In hedge near farm.
7:40 See mixed flock. 2 eganocephala, 1 Ag, and 1 Brew. In low scrub
where Ag sang earlier this morning. SEE TODAY'S NOTES ON MIXED DI-
crossing. All 3 species apparently feeding on or in clusters red flowers.

Brown
PS

Only a few miles to a few feet apart from one another. All about. Then the
 Cygnus fly away. Apparently follows. That it apparently does not
 stay with the thing is long. When in the group places appear minute or
 no less. down the road the Cygnus to the grass. In any case, the Brown def
 unitly does not follow the thing.

A few minutes later. Two deep Cy singing back near where the rain
 ed from the. Long ground. In some components, again apparently proceed
 ed by twitters. Perfectly as to see back. Can the Cy and the Brown be sing
 ing jointly???

Very overcast now and light is weak.

4.59. A single bird for 1st 6 ft. observed. Apparently another Cygnus
supra. Little long twitters in flight. Sound to 1st Brown like. How, jerky,
 flight during the twitters.

Whistled and still singing 8:10 a.m.

Note. My altimeter still says 8900 ft, even though the weather today
 is quite different from yesterday.

See a single Cygnus supra apparently alone. Feeding small fruits down
 e mixed growth scrub near forest. Then sings a few phrases. More or less
 "Sence. more. more. open."

8:25. See single Brown above. Perched top bamboo thicket, 6 ft above ground.
 Little rapid vocal twitters. Apparently pure Brown, except that it looks super
 long stuper.

These twitters seem to be much more even than former twitters associated
 with Cy "Pa. more" components earlier this morning.

There are certainly fewer mixed flocks, and/or they are much less conspicuous
 here today than yesterday. Why? Weather?

Fog coming in 8:30.

8 45 for another night in the same place

Then see another (in the same) night in the same place

Leaving out 8 55!

Then see still more night in the same place

For a night in the same place. But a new night in the same place, also several second growth

Back to Yana 9:00. Pair of cyanocephala there. Several small trees 10 ft up. Uttering song phrases "see see see" "see see see" "see see see". The other notes not as frequent. One of cyanocephala was toward the cyanocephala moving in the same direction. The cyanocephala appeared to be the Tanager, singing, at a distance of 20 ft or so.

Then see still another cyanocephala alone. In this, high several growth cyanocephala really don't seem to be very gregarious here now.

Again, another cyanocephala alone. Then see edge of the same. Then see a single Brown alone. Feeding cap-shaped red flowers.

Brown

Feeding cap-shaped red flowers.

Leaving 9:40 a.m.

NOTE. On my way home, I stopped, briefly, at the place where 4 Blue & Chestnut Cornbills were seen the day before yesterday. No sign of the Cornbills, but I did see a single Gray-breasted Thrush alone. This individual definitely did not have a bright eye ring of any sort.

March 3, 1964
South of La Paz

Going to try to work along the road to Calamarcas this morning. Arrive town plaza Calamarcas 8:25. Still dark. Cloudy, cold as hell. 13,125 ft.

Hear first bird songs 5:58. Something singing quite energetically. Possibly a Seiurus or a species of Phrygilus with which I am not familiar.

Counting a second town is like just before.
Really lots & lots of song in place 6:25. Probably birds of Piranga or Agelaius heard in dry season?

Weather abominable. Rain off and on.

Go on down part way along road to Amore and Sapahague. Nothing of interest (to me).

March 6, 1964
Dr. Underhill

Going to work below Underhill again this morning
ACCIDENT !!!

March 17, 1964
Dr. Palca (B)

Going to work near Palca in afternoon. This morning going to work in garden lower La Paz.

Arrive 5:35 a.m. Still dark. First bird sounds (probably an alarm call) heard 6:12. Then "Wheet-chew" type DC starts 6:15. Doves Chinas very slight. First Orange-bell sounds heard 6:20. "Wheet-chew" phrases.

First Agelaius songs 6:28. "Ja-see" phrases, sometimes with terminal trill.

Carbo? Followed by what sounds like 8-9 groups of 10-15 birds. Then silence.
 Carbo? Then definite song 7:00. "Ja see" type phrases. Song
 of from same area as other songs. Then silence again.

Group of the birds being very conspicuous. In some of the caps (p. 150) 9's and 10's juveniles - apparently little red in plumage.

More definite song in distance. "Ja see" type phrases.
 In a single Orange bill alone.

"Carbo" In a pair of Carbo's alone. Feeding in low thick scrub about 1 ft
 apart. Presumably B pair (in middle of C area). One, at least, of these birds
 has definite supercilious stripe (both sides). Definite, in fact, refers to
 teeth. Then one Carbo flies up into the thicket. The other does not follow. No song or
 utterance after separation.

Everything very dull 4:00 pm. Day is cloudy but fairly warm.

Carbo? Speak of the level. A few minutes later hear definite song from
 tree into which Carbo flew. "Ja see" phrases with terminal twitter. Then silence
 again.

Carbo? Catch a glimpse of an A Carbo in hedge. Apparently (?) joined by another
 then. Yes 'definite'. Lots of (R-Twitter) is as 'greetings' and/or feeding
 calls (which birds are largely unresponsive). Then both up into willow. Feeding
 on trumpet-shaped gulls flowers of rose. One supplants the other. Silent. Then
 both disappear. No, both still in willow. Then one flies into Eucalypt. Does
 appear 7:27 am.

In a single House Wren, lots of Red caps, another Orange bill, all more
 or less alone. I.E. not obviously following and/or joining one another - all the
 encounters occurring in same bush or tree. NOTE. Although there do not seem
 to be any organized mixed flocks here (among the birds of my groups), the
 different species are not avoiding one another as seems to be the case near Q.

to and from

See some I saw a single *Thryothorus* alone. At least one is large and brown with white eye ring.

Working down by river 7:30 Little or nothing around.

Another single brown thrush, no eye ring (all flowers have orange all over legs). Then see a pair of brown thrushes, one at least definitely with eye ring!!!

Carbo

8:30 am. Then down below, see one of the A Carbo perched in willow. Alone. Little song phrases. Then goes away. Then goes to feed. On pink tubular flowers. Also picking insects off leaves. Sings in intervals feeding. All the songs uttered at first before passing and the first part of the feeding period. Just "Zeeva zeeva zeeva" or "Zeeva zeeva zeeva". Then bird begins to sing a little more frequently. At same time, begins to add a terminal twitter to each phrase. At same time, the "Zeeva" notes become a little more like "Ja-ee" notes (i.e. pitch difference between the 2 parts of double becomes less). But still probably better transcribed as "Zeeva" than as "Ja-ee". (See "Zeeva" & "Ja-ee" notes). Then "Ja-ee" notes, the effect at end of many twitters.

Carbo

It is my definite impression that Carbos are singing more frequently this morning than on the previous morning I was here this trip.

8:47. See a single P. gage alone. Low in Eucalypt 15 ft above ground.

See what is probably same bird again, similar place, still alone 8:50

There is a very young juvenile bird nearby. Is it a gage?

Back to A area 8:40. Still coming out.

See single thrush alone. Blackish, orange or coral belly legs, quite broad yellow-orange eye ring.

Carbo

8:44 am. Single Carbo in Eucalypt. About 30 ft above ground. A area.

158
10/26
Utters a few song phrases "Zeeen" type. Then a general note in the air, about 1-2 ft away. Can't see but hear it. But definitely has to be a bill. Sings along alone with definite strutting. If other slightly yellowish on low, also struts but a bit less happy. Below with young. But I don't think shuts up when general birds. General for a couple of days. But quite close to adult. No obvious reaction between the 2 birds. When the general goes on to hedge to feed. Adult remains in tree and sings a few more phrases. All "Zeeen zeeen zeeen" etc.

159
10/26
It is obvious that this young bird is not allowed to remain in territory of adult A's, although its parents don't seem to be taking care of it. Incidentally, I saw that the pair of Cuckoos seen here are also a compound of 2 adults rather than 1 adult and 1 young. Leave 7:00 am.

Afternoon. On road between Palen and Cal. Stop at a place called Oreguio 2:27. Some rather dry-looking scrub. Lots of miscellaneous finches around. Also something uttering "Wheet-din" "DC". Same species as in La Paz, obviously. But can't get decent view of bird uttering the sounds.

Flies a pair of *P. gagi* alone.

See a ♂ "Red cap" alone in low scrub.

Some more red tubular flowers with holes at base of corollas.

See a single Orange bell alone.

There must be *Dryocopus* here, but they are certainly keeping quiet and are all under cover now. (Among other things there is a lot of sound this afternoon.)

See a couple more Orange bells alone 3:25.

Lots of hummingbirds about.

121

Andean Sparrows singing full blast when I wake. Birds
things start around 6:00 am. Fog comes in at 5:55.

Brief bursts "Wheet - che..." DC come in. I hear
also singing.

6:15. See Ducas - like *Turdus* alone.

Dawn Chorus in general quite strong but

Fog lifting 6:30. See pair of Orange-bills alone. Single Red-cap alone.

6:58. Another single Red-cap alone.

See single *P. gayi* alone.

7:45 am. While looking for *di. formosus*, I have seen more Orange-
bills, *Coccyzus*, *gayi*, "Ducas", and Red-caps alone.

It is now cloudy. Fairly cold. No wind.

SEE TODAY'S NOTES ON MIXED DIGLOSSINI.

As far as mixed flocks are concerned, this morning's observations
did nothing but confirm my suppositions of yesterday. Organized mixed
flocks (of my species) simply do not occur in this environment.

NOTE: This area, Orejuno, is probably about 20 KM from La
Paz (proper). The garden area which I have been identifying as "in
lower La Paz" (or "in Obrajes") is really exactly halfway between La
Paz and Obrajes.

March 9, 1964
Orejuno

Going to work same place today as yesterday. Arrive 8:30. Still
pitch dark. Cloudy. Patches of fog.

Nothing new - with the possible exception of an indication that a
 juvenile P. gage may have been following an adult P. fulvica. In
 nest 4-8 ft above ground

March 10, 1964
 Oroquieta

Going to work same place today as yesterday. Arrive 5:50 a.m. Still
 dark. Some cloud and fog, but less than yesterday at the same time

SEE TODAY'S NOTES ON MIXED DIGLOSSINI.

Walking around the streets of Oroquieta this afternoon

4:15 p.m. See single gage alone

See single, presumably juvenile, thrush. Dark rusty brown all over. Dark
 bill & legs. No eye ring. Then see pair of adults, warily. Presumably parents.
 Apparently brown-green. Bright legs, bill, & eye ring.

Catch a glimpse of what looks like a gray-breasted thrush

Then thrushes alone. Also single Orange-bell. Also star

See a group of about 5 brownish thrushes more or less together in garden.
 Species unidentified.

Also see an adult Orange-bell feeding a full-grown juvenile

Another pair P. gage alone

Everything quite like La Paz - Oranges in fact!

Leaving 5:30 p.m.

COMMENTS:

Are mixed flocks always absent where Orange-bills occur?? Are
 they always absent where bonariensis occur??

As far as my observations go - there is a positive correlation between mixed flocks (both the presence of mixed flocks, and their "mixing" or complexity) and density of vegetation (and therefore humidity - more or less). But I don't think that this works in the northern Andes - or at least, doesn't work as well. Surely the Bogotá and Huancayo regions do not have much more dense vegetation than Pisco (Peru) with part of the Peruvian Pecos in which mixed flocks are absent.

March 11, 1967
Belen, Honduras

June 6:18 Just getting light. Weather quite good
Almost nothing in the way of dawn birds.

6:25 A few (mostly male) birds begin to sing. Also several alarm calls. Some (brown) songbirds. Their first public B. song (first even, rather like, twitter) 6:30. And White-throats sing a series of notes. The song of White-throats continues while B. remains silent. White-throats shut up. B. utters one phrase.

See "mixed flock" of C. and B. SEE TODAY'S NOTES ON MIXED DISCREPANCY

B. is quite silent now, 7:04. White-throats still singing furiously.
See a single thrush alone. Brownish.
See a single White-throat alone.

The sun is out and it is beautifully clear now.

7:10 See a pair of *Myiarchus* alone. In low second growth scrub. Alone.

7:34 See a pair of *Cyanocitta* alone. In low trees where C. and B. were seen earlier this morning. The tanagers eventually fly away. Just after

"warbler" of the extreme *Antrocorax* or *Thlyperus frontalis* type. Head not
compromised, stretched. Crown just a little shiny. Eye couple of feet on head
is yellow supercilious stripe. Whitestarts and *Thlyperus* balance in lead, or,
more correctly, ahead of the others. But *Thlyperus* does not make any pro-
gress until the warbler-*Thlyperus* assemblage moves. The *Cyanocypselus* and
the Whitestarts usually wait for the warbler-*Thlyperus* when the latter do not
follow immediately. I.E. both the Whitestart and the *Cyanocypselus* are playi-
ng more or less the same role as the Collared Whitestart in Chiapas. Inciden-
tally, is the Collared Whitestart a geographical representative of *subcapitata*?
The *Cyanocypselus* sing occasionally while with flock. The Orange heads utter a
lot of R's from time to time. The other members of the flock are quiet, uttering
only W's - and not too many of those. When first seen, all the members of the
flock were in trees, 10-20 ft above ground, in area which may have been "ju-
mari forest". Then gradually move into area of low second-growth interpersed
with scattered trees. Here, the Whitestarts and the *Cyanocypselus* remain
in the trees, 10-20 ft above ground, while the other warblers and the Orange heads
went down into the scrub, usually 2-10 ft above ground.

Leaving 10:05 a.m.

March 12, 1964
Near Kuduwa

Going to work in ZC area, right outside Kuduwa. Arrive 2:25 p.m.
Cloud. Occasional light rain.
Birds around, but keeping hidden in scrub.
Rain more or less stopped 3:37.
3:45 See a single *Myiarchus* alone in bamboo scrub.

In 1912 White tails apparently alone, thick second growth. Correction:
they are the same as of a small N. G. group also includes at least
one disjunctive type, one (large) bird

What can we do to help?

Par. mostly deep. 4 ft. All but of sea near

La 2a parte de la obra cuesta ahora 4.50

There were again some mixed flocks as before. Almost some place. Hawk was
quite close, but none rising. The brownest bird at whose it was almost impossible to see
the birds. There is also at least one Orange head with group now.

Group seems to be making almost no progress

4.50 Catching glimpses (and words) of a pair of Butoraptes up hill
in the canyon side. At least one Butoraptes in nearby trees
Apparently moving around together.

Then downhill, so y's away, see single Orange head low second growth
 uttering loud "coo"s Moving uphill, in direction of Buttercupes - Finally
 flock can't tell if it goes or not

Some distance further on, we might catch the same species as on road
to Colletucara. Over the road from the Flycatcher, are a pair of Whitestarts.
All in second growth. Also a Towhee with the Whitestarts. Also
a pair of little streaked Flycatchers with second nest. Possibly some other than
of individuals. Whitestart f. —————> Flycatcher with second nest.

5.33pm Come across mixed forest second growth scrub & bamboo very near to open. Includes at least 1 negrocrinitatus (just a trace of black on forehead), 1 adult Orange head, 1 Juvenile Orange head. Adult Orange head \longrightarrow negrocrinitatus. All quiet. All picking insects off leaves.

a few more rings there.

Everything dead 3.30 pm

to another night Death! All trees gone!

Leaving 6.00 pm

Northern Bolivia

Below Induavi - 1964

Hours Spent

Mar 3

3 hrs 30 min

Mar 4

3 hrs 15 min

Mar 11

3 hrs 30 min

10 hrs 15 min

Northern Bolivia

above Induavi — 1964

Hours Spent

Feb. 26 3 hrs 30 min

Feb. 27 3 hrs 00 min

Feb. 28 4 hrs 45 min

Feb. 29 4 hrs 00 min

Mar. 1 3 hrs 15 min

Mar. 2 2 hrs 30 min

21 hrs 00 min

Mar. 12 2 hrs 30 min

23 hrs 30 min

Northern Bolivia Mar. 3, 4, 11

Below Induani - 1964

No. Inds. seen alone

|||||

(40)

No. Inds. in flocks

(50) |||||
|||||

(66)

106 - TOTAL

67.26%

No. flocks seen

||||| (12)

No. H.O. flocks seen

||||| (8)

Largest No. Inds. 1 flock

11

Largest No. spp. 1 flock

No. spp. per flock

20 { 3
4
2
3
5
3
15 { 2
3
3
5
2

(35)

Northern Pelvia

above Induani - 1964

Feb. 26, 27, 28, 29, March
2, 12

No. Inds. seen alone

|||||

(50)

No. Inds. in flocks

(50) |||

(100) |||

|||

(135)

Total = 185

173.52%

No. flocks seen

||||| (22)

No. H.O. flocks seen

||||| (16)

Largest no. Inds. 1 flock

20

Largest no. spp. 1 flock

No. spp. per flock

2 3

2 4

12 2 9

3 12

3 4

4 3

3 4

3 (20) 3

26 2 4

2 2

3

9

(8)